

*Record*



901-1122

#1  
25

Mosquitoes page 189, 199. (1902)

Harrison G. Dyar  
U. S. Natl. Museum  
Washington, D. C.

Apr 30 1900.  
July 9 1902.



901

Two Arctians from Mr. D. Brainerd, Montreal  
said to be Arctia virguncula. Apr 30 1900.

Hd. 3mm. Slightly bilobed, flattened before, 2 sulci  
impressed; shining black, epistoma ochraceous  
below. Body arctiiform, normal, velvety  
black, abd feet, spiracles and hair from  
lower part of v and vi brick red. Ant i  $\frac{2}{3}$  or  
more the size of ii, both with shining bases.  
iv large. Basal joint of antenna large.  
Hair stiff, black d, sparsely but distinctly  
tubuled, somewhat longer ones at ends  
esp. post. The feet black. Others do. but  
sr have 2 feet dark brown rather than red.  
Hd looks wholly black.

Spring May 10 - other died May 14

Chd June 13 Cat no 15948

Arctia virgo ♀

Egg conical, base flat, smooth shining pale  
yellow. Lid loose. D. 8 H. 9 mm. Very minutely  
irregular hexagonally reticulate, obscurely and  
shagreened.



2 *Abbotana crenatana* as  
seems. XVII

Scenes XVII

902

Goose egg Anacrostia D.G. on chestnut twig Apr 30  
1908. a large mass 300± laid closely on twig all  
erect on the smaller end like *Clitocampa* but naked.  
elliptical flattened on two sides and a little concave  
the larger end distinctly flattened truncate, side view  
slight wedge shaped. Rets very faint, not showing as  
lines but as slight rounded hexagonal flattening,  
except just around the rim of the apical truncation  
where they form a row of slight raised ridges composed  
of the raised side of one series of cells, rather broad  
and diffuse, and an anastomosis where there are two  
small rather distinct rets. 7 x .55 x .45 mm.

020 dark red shining, uniform when found.  
Hatchling May 7 Ht. 3 mm, rounded, flattens before movement.  
Pupils free, black, epistoma <sup>blackish</sup> pale whitish. Rostr. slender  
but not greatly elongated, flattens d.v. basally black  
d.v., bearing a white lat. stripe 2- and 4- which  
is pale with a reddish central and lateral line.  
Cn. dark like dusky, obscure and feet reddish  
base of 10 darker than 13. Setae dusky with small  
granular tips, rather stout from moderate tubercle  
pale than ground color but not contrasting. "i" ii  
small; i line, iii & iv ii, iv subdy. lat, no subfm. 4 on cth, 2 detachable  
White side stripe covers by plate of 13, not 9, 10; clasp  
1 feet pale. Segs fine, not very regularly annulate  
but feet pale, darker shaded outwardly. At white oak  
at white creek. dark with brown base.

Shad. Apr. 12. Vol. 6. Rounded lateral & moderate pinnules. Dorsal fin  
slaty black, epistoma & antennae white beneath. Gills  
moderate somewhat robust, smooth, scarcely annulate.  
Scales slaty black, only the claspers of abd. fin pale  
yellowish. Tubercles small, dark, setae rather distinct.  
Dusky, dark. Skin not shiny except slightly in folds.  
Scales shiny olivaceous slaty black; no markings.

July 15 Hd 1.2 rounded with slightly bilobed apex from  
June 2, 4 large, broad, rounded lobes high, strong black  
labrum, labium white, slight white streaks on the  
sides above ocelli. Rod rather robust, not greatly elongate  
wristed, subcapitate last joint. on segs, smooth, the  
tubercles slightly elevated esp 12 post. anal fl. broad

Later found color alike all over, slight ochraceous tinge  
the under side same the dark portion more contrasted  
Hills J May 30. End - July 2 Aug  
also out April 17 1901 Cat No 16088

2 rounded at tip, anal girth thick. anal feet  
purplish laterally. all brownish black, and shiny  
no distinct marks. Foot 10 rounded pale. Venter  
a trace lighter than dorsum, obscurely longitudinally  
streaked; IV & V obscure white rings. Setae short  
black. The feet black, equal, appressed, Gata the  
color is honey black centrally, duller at the ends, the  
tubercle a little elevated and lumpy esp. a sd pro-  
minence on 3 which forms a more or less distinct dorsal  
collar.

Shed Aug 17 Hd 2.2 Hd rounded, slightly bilobed, flattened before, frons from 2, lobes full,  $\Delta \frac{1}{2}$  to vertex, the par  $\Delta$  piece obscure. Slaty black, lower part of  $\Delta$  mounted pale, labrum (and sides of lobes streaked) & epistoma whitish, anal. Antennae short, brown. Body cylindrical, thick, rather robust, uniform; 3 and 4 strong, collared with a double lat. fringe process, bearing ii and iv+v. A rounded process bearing ii & 8. Dorsal tubercles all slightly elevated. Anus purple, short, projecting. Slaty black d., a little brown, shading to shaded ochraceous ventrally, mottled & streaked with black. Collar 3 fleshy colored before; process orange spotted; orange dots on ii, iv & v and a larger one outside the fringe process of 8. Foot of 10 slightly shaded ventrally. A black blotch on 8 5-v. Thorax and feet dark. Setae small except on anal plate & with hair tubercles black. Bristles hd 22 down forming an L at 3, feet of 4 crossing the 5th, making the anal. end thick and club like.

Shut Th. 22 Hd 3.2 Hd shape as last back of occiput covered by 2  
labrum quadrate emarginate. Epistoma brown. aa. Purplish gray  
thickly mottled on a whitish ground. Soma somewhat spiracle on face  
lobes, eye black, last and joint very reddish. Body as before a little  
intensified. 2 and 3 ant. abruptly rising to high collar elevated  
on 3 angled sd by the double finger processes. Dorsum descending to  
5 then cylindrical & smooth (except for the small produced tubercles,  
ii rounded to 12 but ii 8 very large a high club shaped papilla,  
ii 12 also prominent but less so. Anal fl. covered behind, by shield  
not produced post, prong, thick moderate. Purplish brown like  
ant. densely mottled, shield paler, reticulate. Foot 10 2 prong.  
Colla black on any patch before it, mottled. High processes tipped  
red. i-v bright orange cushions with black hair tubercle, vi-vii  
black all a little elevated. Spiracles white black around. Setae  
short black distinct. 4 below spiracle lighter more grayish than  
dorsum. Darker shaded base on 9, antro 88 sd 10, on papilla 8.



903

Homopterid? like bark on white oak Amacacia  
D.B. April 30 1900. [Perhaps = that oak thing  
from plant off. Reelfoot BB]

Hd 1.5 bilobed, free, flattened obliquely before,  $\Delta \frac{1}{2}$ .  
white, heavily black marked. a stripe from middle  
 $\Delta$  to apex, one anterior-apex, a short one before  
antenna to center lobe, all joined by strong  
distinct reticulate line; a vertical bar in  $\Delta$   
suture black lined; ant white & black ringed  
setae rather stiff, short, pale. Body strongly  
flattened; feet 7-8 small, 9-10, 13 large,  
spreading. Dark gray, a grayish white  
lined with black. in shields. D. area  
pale,  $\Delta$  by widened on post  $\frac{1}{3}$  of each seg. and  
less broadly so on ant  $\frac{1}{3}$ , cut by a d. black  
linear streak and brown mottled; sd band  
narrow black, as wide as d., covering i & ii, crossed by  
pale an  $\frac{1}{5}$  except its black edges, darkly mottled;  
lat. area pale, equal in width & marked like d.,  
terminal, but the edges subparallel, cut by  
a central streak; supra stig. like sd, covering  
iii, iv and (in its lower edge) the spiracle; s-r like  
d. i lat., its dividing line just crossing v, vi on  
its lower limit a dark line. Below the venter  
suddenly white; feet gray. ii large, ochraceous  
tinged esp on 12-13, often with a light area  
next iv. Setae stiff short black d, pale s-r.  
iv at middle or above spiracle except on ii.

[Shed May] Hd. 2.6 gray with whitish sub-seguate with  
irregular concentric lines, a black line at apex &  
para  $\Delta$  suture strong, ant a broad curved spine each  
side to center of face & lobe, an irregular curved  
band from apex behind, across side to base each  
where of a disconnected mottles, subreticulate  
an upright dash in  $\Delta$  and antennae black.

Body rather flat ventral, feet 7-8 smaller  
than the rest, s-r white roots present, 4 n.s.  
short thick rods for seg. tubercles large,  
elevated, ochraceous, tinged whitish at apex, ii sp.  
large, s-r over not marked. Marks essentially  
as before, a little more uniform mottles, back like  
(Dead May 17)



904

On "moss" from Maine with  
 many flowers. Spins a silken tube in the moss.  
 Hd rounded, higher than wide, scarcely bilobed,  
 epistoma pale, rest shining black. Body  
 reddish with faint crinkled whitish sd  
 and lat (iii) lines, Cth large blackest,  
 horn-black; anal fl and a conjugal patch  
 13 and also black. Tubercles none, rather  
 large, evident blackish. i, ii in line, iv  
 v closely approximate, in line, vii also dark  
 lat i b, ii a or i b, iv or v on thorax. Tars. feet  
 blackish-brown. Cylindrical, rounded, 3-annulate  
 setae moderate dusky. Feet rather slender,  
 alike 7-10, 13.

7/46/00

905 = 760

XIX

Cat 15879 DC May 23 1900

Egg by ♀ Evis  
 Laid perfectly loose, rolling around in tumbler.  
 Roundedly elliptical, one diameter less than the  
 other but without flattened areas, slightly more  
 sharply rounded at the micropylar end, about  
 15 longitudinal, strongly prominent ribs with fine  
 parallel cross striae, slightly raised both across  
 ribs and in interspaces. Ends confusedly reticulate  
 the ribs abruptly ending at the edge of the micro-  
 pylar end, becoming merged in the ret. at the other. 55 x 4 x .35  
 very pale green, almost white, not shiny [Infertile]

*Senecio encruciatum* (no black)



906

*Arctia* in grass D.B. May 27 1900. Larva  
 like *Estigmene acrea*. Hd black, epistoma white  
 a broad quadrate pale space over m. sutures  
 and apex clypeus, W.  $3 \pm$  mm. Body black shading  
 to dull gray s.v. Feet brownish red, a  
 faint narrow whitish d. line, distinct on 2-4  
 i & ii black, i over to eye & ii, ii with a broad shiny  
 base, iii pale yellow, iv orange tinted v & vi red  
 brown, all with black hair tubercles. On thorax  
 all the warts pale, cth represents 4 warts  
 in 2 rows. Warts of 13 also all pale the  
 large sd are colored like iii. Hair bristly, black  
 d, brown-red 2-4 and s.v. (iv-vi) 2-13. Spin-  
 acles pale orange, black rimmed. Both i and  
 ii, esp ant, are partly pale yellow under lens  
 but the bases of ii are shiny blue-black.  
 Anal flap dark with small pale warts.  
 On 3-4 the warts along stig, i & ii the large; ii b  
 not seen, but iii a distinct, though small, many  
 haired wart. (Spun in June & did not pupate soon)  
 Ant Sept 11 1900. Cal. no. 16069  
*Arctia intermedia* Sts



907

Stage I Acronycta on alder, Rock Creek D.B. May 31 1900  
 Hd squarish, lobes angled, white mouth brown, all-  
 black, setae long coarse black 12; wd 4 mm  
 Thor i+it, ii a, ii+smaller, iv, vi, full 2 black, ii a gray  
 abd i-v & vii, iv stig above upper corner, i-iii black rest  
 white, all white on 11. Body cylindrical, brown,  
 tubercle large angular elevated, single varied,  
 primary, 11 weak. Translucent greenish from food,  
 tubercle white. Hair subspinulose, tapering, 12  
 a little enlarged; fat equal. D hair curve forward.  
 Shed June 3 Hd 6 squarish lobed, white, a tiny black dot on  
 face of lobe. Body translucent whitish, foot green, 13 black  
 from face. Warts large but diffused and not distinct  
 circuli. Hair numerous long, white, mixed  
 with a few black ones dorsally. iii & iv contiguous. 10  
 distinct 20 hairs.  
 Shed June 7 Hd lobate, Δ, 4 patch in d suture & an ellipse  
 on each lobe distinct black. w. 9 mm Body white, 11 cut  
 iii 12 large & prominent warts circuli. Hair white & 2  
 2d, square black d. tufts single on 5, 7, 12. Greenish  
 white, c-sh & warts of 2 black shaded. Feet dusky  
 d. & 1st lines. Later all black d. except warts and  
 a series of fine dots centrally on segs.  
 Shed June 11 Hd black 1.6 mm Body black d. sides & aunts  
 whitish translucent, hair 1 & 2 stiff white d. 1m-  
 sea 5-v and at ends, brown d. 2-4. Short thick  
 black d. tufts single 5, 7, 12.  
 Shed June 16 Hd 2.2 shiny black, setae white. Body black  
 densely covered with 20 hairs. Shorter hair white d. 1m  
 a 2-4 and lat, square black tufts on 5, 7, 12 large than  
 other d. hair. Long hairs white on black with white  
 tips the white tip thickens black sharp subspinulose  
 beginning to look "mounded". Dorsal warts nearly obsolete.  
 Shed June 21 Hd 3.4 do; d tufts shorter but still above  
 other d. hair. Black, 13 d. Sparsely haired, lat warts ochreous  
 Hair ochreous brown. Black d. white tipped & mixed with  
 white. Sparse longer hair black white tipped.  
 Shed June Hd 4.5 all short haired. Tufts obscure  
 like max. Sparsely white.  
 Spring July 5 Cut July 25 Cut 16025

908

*Eois inductata*

Eggs by ♀ larper 15906 Wash. D.C. June 1 1900. Long  
 and nearly cylindrical. less in one diameter but  
 not with any flattened surface; one end just  
 a little bulging, then tapering to a round, blunt point,  
 the other (micropyle) roundedly truncate. About 18  
 longitudinal ribs, flattened at the joints of the faint reg-  
 ular cross striae which form square cells. Ribs denser  
 increasing by a few by with calcification shortly before the  
 ends; micropyle end coarse irregularly reticulate  
 pearl white, looking beaded from the flattened ribs.  
 Length .9, w. .4 x .3 mm. wedge shaped from side.  
 next day turned pink, shading to red at truncate end.  
 Hatched June 8 Hd rounded, feet slightly lobed, brown, w. 3 ±  
 Body slender, whitish, a rather broad even brown gray dorsal  
 band, separated on 2-4 <sup>into 4 distinct lines</sup> but soon merging into a single  
 band d. head to 13. Tubercles faint mottled with brown.  
 Pale, many obsolete, setae short dusky with small enlarged  
 tips. Feet pale segs finely ± 20-annulate. A broad 5-v band,  
 the pair separate. anal flat pale. Segs scarcely enlarged  
 centrally, uniform smooth. ate clover and rag weed, pupating  
 late. Turned all greenish from food.  
 Shed June 13 Hd round, occip lobed, feet, whitish, a white strip  
 on face of each lobe, containing an isolated brown dot opposite  
 middle of d. many brown dots filling in suture and apex of  
 Δ also on outer side of white band; labrum pale; ocelli and  
 tips of antennae brown-black. w. 4 mm (scant). Body moderately  
 slender, smooth, normal segs numbering (± 20) fine annulate  
 but not distinct; setae short black, rather coarse. Dorsum  
 broadly dark brown, cut near its edge by a linear, slightly  
 flexuous pale opalescent red line, most distinct at ends  
 and on incisures; side pale green; a broad 5-v band colored  
 like d. & slightly intensified at vii on each seg. Venter  
 pale green rather narrowly. Cph more reddish than rest of  
 dorsum. Feet all pale.  
 Shed June 17 Hd 6 mm, cut brown, head no feet feet green,  
 antennae rather large, divergent, straight, white, with broad  
 bands of brown mottling on a side of lobe & one near in  
 suture. Suture itself brown as also dorsal suture above anal. Venter  
 tipped. Body moderate, segs ± 30-annulate rather obscurely. Dorsum  
 broad brown, pubescent, cut by narrow pale red line and on  
 2-5 by a d. line also, sides concolorous, then anal lat. pale at  
 the sides. 5-v fold white, slightly yellowish. A broad 5-v



purple brown band, emphasized below spiracle & a darker patch; a narrow contiguous pale line below the band; ventrals narrow & whitish. Feet pale outwardly. Setae short black. Tubercles minute. (Eat clove now)

Shed pupae 23 Hd. I white with brown dotted bands  
as before. Body moderate uniform, finely annulate  
brown dark brown. a fine white sd line continuing  
white head; a pale brown belt band in front contiguous  
to a still paler suffusing one. s-v fold white a trace  
yellowish. a geminate s-v pale brown band, the upper  
half containing a narrow black dot below and before  
spiracle. Venter not broadly whitish. Feet pale  
the abd joining brownish marked. No discoloration shield  
[sample died at feeding without ecdysis]

July 2 <sup>sp. at home</sup> <sup>hol 1.1</sup> <sup>ant. dead.</sup> <sup>ant. dead</sup> rounded, higher than wide, ocellus bilobed, ant. distinct, whitish with brown shade, black dots, naturally on each side <sup>from ocelli</sup> <sup>valves</sup>, lobes on the sutures. Suture & dark body slender, seg. moderately drawn out, the central ones  $\pm 25$  annular, narrowing, annulet 1 somewhat larger. Whitish, dorsum gradually brown shaded, forming a dark geminate d. line diffuse retrogradely followed by a pale s-d line on old joints but on this <sup>5</sup> distinctly edged by dark dots. A whitish band on s-v joint; a narrow brown spot below it a little in front of spiracle. distinct on 5-7, faint on 8 & 9. Feet pale & a little brownish dotted, the anal elongate & tubercles geminate dark, setae short dark, slightly enlarged before tip. Spiracles brown surrounded. There are some 20 setae present, forming about 20 hair & all on each side of a segment, all alike in size and color most of the extra ones being sd in a continuation of the line of i and ii. and s-v joint. (all dead)

$$909 = 456$$

Eggs of Euphanea meridica 15898-905 from ♀ taken  
May 31, Wash D.C. Eggs June 2 pinkish ochreous (88456)  
(See 456 for I) smooth, fine shagreen, slightly flattened elliptical.  
Hatched June 9 ate violets. At all mid-dial grey green, feet pale  
no markings. Tubercles distinct, dark, a little elevated. at end  
of stage a broad irregular bordering purple sd band appears.

Shed June 14 Hd. 6 strongly colored, round, flattened before free  
from 2, black, light on apex of lobe before. Setae mod-  
erately slender, uniform, fine but not distinct,  
numerous annulate. anal flap truncate notched and fat  
with small teeth; shield annular, uncorrupted.  
Tubercles small, black, iv on the elongated segs (5-10)  
on a large rounded elevated black base, all distinct  
setae short black, club shaped at tip. whitish, green from  
faintly a band diffuse, pulverulent purple, brown  
ed band 2-13, and fat marked slightly with the color  
and tubercle iv surrounded by it. Spiracles black. Feet normal

Shell June 21. Hd. 8 rounded, slightly squared at apex, not lobed, erect, free of 2; black, whitish mentum over 4 and an erect line to top of each lobe joined by a line across above 4. Body whitish, speckled with distinct though not large, slightly elevated black tubercles shading to pale slate gray d. & v. Seg. numerous, but not very strongly annulate. Dorsum irregularly speckled with brown, on 11th a few plaques 10-12 forming a diffuse red band; a more evident spot behind the spiracle. Shields cerise, not corrugated. Body somewhat slender and elongate cylindrical, smooth. All feet whitish.

July 21 Hd 1.2 (ocant) cordate, erect, flattened before, the  
lobes slightly projecting before with an elevated tubercle  
i; whitish, gray mottled, a blackish shade about side  
(we have part of  $\Delta$ , reappearing in a patch on inner  
side of vertex of each lobe. Body long & slender  
cylindrical, uniform 13 truncate, slightly concave  
just anal feet marking  $\Delta$ , no process. Central segs  
with a broad smooth space ant, then  $\pm 15$  annulets  
not very distinct, 12 of the annulets between tubercles  
i and ii, the end segs. noticeably contracted. Flesh  
colored, shaded with greenish and sparsely brown  
dotted, on this, still slightly indicating a sd line  
but feet broken up, forming a group of d. dots  
on 9 and about 10 on 8 & 9. Tubercles slightly



prominent in blackish patches. Setae short, darker  
 directed obliquely post. no shields.  
 T shiny in delicate open web. July 9

910

Egg by *Pyralis farinalis*? 15911. Laid June 5 1900  
 Ellipsoidal, flattened above, below (like *Sphinx*)  
 rounded, a little irregular from softness when  
 laid, coarsely <sup>granular</sup> oblique, no rets. a series of  
 slight longitudinal creases darkly marked & a  
 little tinted toward the end in some. Pale  
 flesh color. L .5 width .3 mm. Not shiny. Loose



911

H. W.

Egg by 2 Cooper 18922 *Cabardus confusus* <sup>H. W.</sup> Wash. D.C.  
 June 8, 1900. Laid loose in bottom of tumbler partly  
 elliptical but short and stout, approaching spheroid.  
 one diameter however slightly less than the other  
 super and well flattened, the other with a  
 rounded point. 16 ribs starting from a compound series  
 of dots and a little irregular at the posterior end  
 to the rim of the micropylar truncation. This area  
 has on its outer half a single row of large quad-  
 rangular cells, continuous with the ribs; the inner  $\frac{1}{2}$   
 is slightly raised and finely reticulate. Cross the  
 fine II, not elevated faintly. Edges of ribs with a  
 double row, alternating of minute concolorous beads,  
 which meet at the micropylar truncation but point  
 to the anterior dots in the opposite end. Shiny green-  
 ish blue, the ribs and end dots slightly whitish from  
 the breeding. Size .75 x .75 x .75, the side flattened  
 being as slight as that of some a scale. Turn dull purple  
 when young. H. W. rounded, <sup>slightly</sup> bilobed, erect, shiny black,  
 smooth, lower, short cone antennae contrasting white  
 to .55. Body rather robust, not greatly elongated, smooth,  
 white with broad transverse purple brown <sup>wide</sup> bands.  
 24 with irregular sd spots, the 1st small, dorsal of these  
 and others at base of the arched whitish the 1st. The  
 brown bands begin 4-5 and end 9-10 (unreg. 6) and irregular  
 broader ventrally, wider than the white space a cent  
 of segs and joined by a narrow sd streak, interrupted  
 partly by a thin white dash on sd <sup>ant</sup> ~~post~~ and ventrally;  
 10-12 marked on dorsum and <sup>ant</sup> ~~post~~ <sup>ventrally</sup> with  
 purple brown the feet white and and feet white. Segs  
 slightly irregular enlarged centrally, subannulate, indefinite  
 setae minute dusky, tubercle small, concolorous,  
 whitish as in form the next band behind  
 (not one dead seg 2. frequently set free)

most eggs from 2 Ant no 16066 Sept 2 1900 One hatched  
 Sept 13



912

= 716?

Eggs by Cooper 15924 *Nemoria subroscata*? caught June 7  
 in egg till 10th when hatching. Elliptical, strongly  
 flattened above & below, one end a little depressed  
 and truncation. Smooth, very fine reticulate surface  
 yellowish green, shiny .8 x .6 x .3 mm. Slightly  
 adhering to glass. (Infected)



913

Egg by 2 larvae 15923 *Helicoverpa cycladata* Gt Lb. June 10, 1950  
Laid singly, in end! in hole in leaf. Flattened  
cylindrical, rounded but over diameter. Distinct  
striations; ends flattened the basal (anterior) end.  
The rest as but rounded under. 8 cells probably  
at the end of the micropylar end. Increasing to a  
few more by intercalation of thirds other end.  
Rounded, somewhat beaded with nearly contiguous clear  
beads, a little waved; also slight flexure in course  
joined by thick, curved cross ridges, a little irregular  
and along apical 11, one to each bead. Confused with  
rounded pit-like pits at base which impart  
the short intercalated cells seen a part. Round  
larval pits also in the small level micropylar  
area.  $6 \times 35 \times 25$ . Dark leaf green beading a shade  
paler, not white. Another larval in a petiole?  
Laid singly on leaf edge of leaf a hole.

June 21 (July 2 infested) at leaf. Hd. round lighter than  
with strongly lobed erect. Thorax but lower than 2, and  
lateral, grayish in color, cells black smooth base, w. 2 +  
body short and rather thick, normal, smooth, increasing distal  
the legs, a little bulging ventrally. Small rounded short  
pale green from food; very faint brownish 5th coxae, whole  
length. Tubercles small black in whitish rings. Shields  
concolorous, unmarked, etc. going later than the 2 before  
white. Setae brown, obscure.

July 25 Hd. rounded slightly lobed erect, slightly  
longer than 2. Pale brown, slightly shiny; w. 25 mm.  
Body short & thick, normal, increasing distally, translucent  
pale green from the food, tubercles greenish dusky, each  
distinct pale edged. Faintly indicated darker longitudinal  
lines. Brown 5th and 6th coxae, but very  
obscure. Thor. feet blackish; setae short black distinct  
abd. feet small elongate slender concolorous.

July 23 Hd. 6 lobed lobed, rounded, flattened before  
erect. Pale yellowish not shiny, scales black.  
Body short & thick smooth, uniform pale green,  
translucent, not shiny, increasing to a whitish  
pale translucent and shaded with white. Tubercles  
white blackish, setae short dusky.

July 29 Hd 1.15 round, circular from before, 10th  
just slightly lobed erect free. Light green, scales  
small black antennae moderate whitish  
body short and thick, the central segments w. 2.5  
longer than the end ones and shaped about as in  
noctuid larvae, the ends being slightly contracted.  
Feet normal, the 10th rudimentary, abd. 10 & 11 the  
latter with large plate, w. 1.5 rounded. C. 11  
divided into 2 well separated ellipses. Tubercles  
distinct, rather large, not elevated, concolorous,  
setae short black. Entirely light green without  
markings, the plate and tubercles slightly shiny.  
The skin dull. No anal groups. Tubercles normal  
in size equally spaced on 3-4 & separate. 5 pinacles  
narrowly dark rimmed.

July 2 Hd 1.9 rounded, circular, just before and a  
black flat in apex.  $\Delta^2$  the paired lines very narrow  
obscure, fine bluegreen. Body robust, segs not elongated  
about as in Noctuidae but the end ones proportionately  
a little contracted, obscure. 6-annulate feet normal  
short, round  $\Delta$  & slightly produced at apex  $\Delta$ , w. 1.5  
elongate rounded. No c. 11. Tubercles very small, not  
elevated, distinct; setae short pointed, both black  
from the 1st lateral green, subtranslucent, cells dark.  
Body green like leaf, faded incisions yellowish,  
faint dotted whitish 1st & 2nd long or foot yellowish  
pinacles brown rimmed. Dorsal dorsal feet

July 30 Hd green mottled broadly with brown spots over  
anterior. Body green with many fine brown spots  
forming a broad spot 5th on 5-8 pointed before and  
a small separated into 2 lines, 5th, 6th, 7th &  
5-6 exclusive of 10th. The dots are somewhat mottled  
between central & segs, contractile & darker 10-13  
spotted anal plate & anal foot plate. Venter rather  
hardly green, pale lined. Feet brown dotted.

July 31 on ground with a very few threads.

Body short & stout with small dusky abd.  
darker brown, caudal a little greenish. Head conical  
projected, base shaped as if irregular ended  
all segs sides a greenish cream a long thin white



914=

Egg by 9 15930 "*Imperata ovata*" 56 June 12 1950  
 Said finely striate by side in green in little puddle 9.6  
 to 20. Small for month. Elliptical, flattened, concave on  
 one side but rounded, very slightly from side view  
 the back and flattened, subtransverse, elongated by  
 a minute subgranulation and trace of hexagonal  
 reticulation which are indicated only, chiefly by the  
 minute underlying pores which appear as white spots  
 in carbon light. Shiny light green.  $7 \times 5 \times 3$  mm  
 Round rather dark red

Hatched June 23 Hd rounded, slightly bilobed. Pale brownish  
 ochraceous, a narrow dark line on front angles  $\approx 3 \pm$   
 not shiny; ocelli black. Body moderate, normal,  
 white on abd and median ventral purple brown  
 bands, moderate, straight 2-13, the 6th dorsal a  
 light divergent on 2 and 13. Tubercles and setae  
 minute dark inconspicuous but pale outwardly.  
 Segs faintly annulate whitish, incisions not marked.  
 Shields concolorous not demarcated. Acetab. greenish from food  
 Shed July 18 Hd .55 erect rather higher than wide but  
 not above a pale lateral line & blackish stripe on  
 each side single & near vertex. Body moderate, a  
 little flattened across ocelli whitish which the color  
 is whitish. Dorsum whitish green, a broad red  
 brown sd stripe divergent on 2 and 13 to anal  
 feet. Sides green whitish on s-v fold, a ventral  
 stripe like sd but single from head to 13.  
 Feet pale, skin smooth.

Shed July 29 Hd .9 Rounded flattened before pronounced  
 & head obliquely flat. Pale greenish, obscurely white  
 streaked ventrally, rather large ant. & stripe a side  
 behind ocelli white, the strip faint dark edged  
 before; ocelli black. Body moderate normal & thick  
 flattened; anal pt. slightly pointed, anal feet 4,  
 excavate behind with anal pump's white equal  
 the plate. Light green, 4 white lines in dorsum,  
 sd (rather low) and dusky brown fainter than before  
 a greenish white stripe on s-v fold. Subventral  
 faint white line, the brown v stripe like sd in  
 color. Feet pale; tubercles & setae small.

Shed July 3 Hd 1.2 Rounded squarish, flattened but con-  
 vex in front, anterior large. Head not quite  
 flat. Whitish with green tints, obscurely mottled  
 nigula on side, a blackish band on head &  
 giving a bend at antennae to mouth as ocelli  
 Body moderate slender, smooth, s-v fold prominent  
 whitish green, dorsum with 4 narrow white lines.  
 Lat band blackish greenish 2-13, not continued  
 on anal foot. s-v fold yellowish white, 2 white lines  
 on s-v space. ventral band black brown, crossed  
 by 4 fine lines united by a shading. The feet brown  
 dotted, abd 9, 10 lines before & behind, 9, 12 with d  
 plate greenish above in a space. anal pt d, pointed.  
 Spinacles black edged, thick & 2 longest. Tubercles small  
 & slightly larger. Blackish. Setae short stiff dusky  
 Shed July 5 Hd 1.9 Same, fainter lighter less streaked with  
 white; lat band smooth, red-brown, edged white behind.  
 Body elongate, uniform yellowish of a green shading  
 to whitish green on 2 and 13; a faint, more transparent &  
 darker vascular d. line showing esp. on v. makes later  
 ii, the point on head edge of seg. A slight row of a green  
 sd line below; lat band red-brown, obscurely lightish  
 except at ends, where (esp 10-13) it  
 forms a broad diffuse shade; ventral band dependent on  
 d line and obscure except on thor. between feet red-brown.  
 Spinacles white, black edged except at top & bottom, the  
 feet appeared, green, brown dotted. Feet 9, 10 brown banded;  
 s-v fold light, white post running narrow, on lower part  
 of anal foot. anal pump exceeding the d plate.  
 Shed July 10 similar but head & all shaded with brown brown  
 darker in d. v. makes 1 sd line & ventral line, this pale  
 but on s-v fold contracted

Shed July 18 a white web among leaves  
 a folding up a large leaf. Pigment dissolved  
 and all larvae whitish green as J2



## Deltoids

9/15

Eggs by 44 15931-2 *Rennia larvalis* var. D.B. June 13 1900

Laid in patches of 6 to 20 in glass.  $\frac{2}{3}$  spherical, base flat but rounded rounded; nearly regular reticulate the net. well raised, irregularly hexagonal, elongated vertically, a little deeper than egg, about alike all over. No ribs. Ground glass white 3.6 H .4 mm later with irregular brown spots none or less in a ring.

Hatching June 20 1st moults, rounded, bluish, grey, reddish vertically, pale brown brownish, translucent brown and outer darker, ocelli black  $\Delta \pm .3$  mm. C-sh. grey, darker than head; anal ft. paler grey before transparent part. Body ground glass white, tubercle distinct large, black. The feet 1 leg shield greyish. Feet 7 very small, 8 larger, oval, 9, 10, 13 functional. Setae dusky, distinct, moderate equal. 8 legs cylindrical moderate or rather robust, 12 very slightly enlarged.

Fig. 1. One hd .35, slightly bluish and venter notched behind by annular d. dusky brown, setae pale. Body transparent shaded, spotted with brown, dark, almost black from feet. Tubercle elongated, brownish. Setae short, pale. Slightly flattened ventrally 12 somewhat enlarged d. C-sh.

brownish, widely beaded, obscure. The feet dusky and pale, the pair 7 short.

Fig. 2. With the hd .43 pale brown, slightly venter of darker shaded, setae pale, ocelli dark. Body annular, more opaque, in brown shading dull fuming trace 1 a d. line. Body short & rather robust. Tubercle brown moderate, a little elevated; setae pale, glandular tipped. Fig. 3. With the hd .6 (a little oval) hd do. Body short, slightly flattened v, largest part seg 12, in brown dis. anal seg subcylindrical C-sh. brown, beaded, notched in part lower corner, anal ft. obscure. White marked & obscurely spotted with various esp. broadly a dorsal broad dark. Tubercle rather large almost circular, brownish, setae pale glandular. 14 behind spiracle, large than it, on 11 low down a line with v. The feet mostly shaded. All pale, all functional those 7-8 not a trace smaller.



Spin no web. Sit & stay on the leaf they are eating. July 17. Hd .8 Rounded head, pale brown rounded & clouded with darker, setae coarse short, pale brownish. Body robust, 12 strongly enlarged, a little flattened ventrally. Blackish grey in appearance with a series of lat. glandular yellowish patches and on central segs. Skin short & translucent, brownish blackish shaded on dorsum to spiracles, the yellowish patches below & behind 1 on segs 6-11. Tubercle small with dull brown, covering the tubercle but not blackish; setae short coarse, pale brownish contrasting with bent form, 11 backward, all glandular tipped. Feet normal short, shields concolorous. Spine blackish, 12 nearly black, distinct, flattened ventrally, 12 slightly enlarged hd paler ventrally, setae brownish. Pale no markings at all conspicuous.

Aug 13. Hd 1.4 Round, not lobed but venter distinct erect, lower than 1 free from a, coming straight pale brown with large, narrow confluent patches of dark brown, anal. Red flattened ventrally, robust thick, 12 strongly enlarged, legs irregular 4-segmented. Tubercle large rounded, elevated but does not show much concolorous with body black with pale circles at base. Setae pale, erect, sharp, dark pointed form & backward. Tubercle brown-black, a pale dark below & behind 11 on 2 feet annular. C-sh with pale around 11 & pale nothing behind. Feet short, numerous pale venter pale greyish, all marks obscure. Fork color of dead black much black. Some are pale, brownish. Pupa Aug 13. Stated not over 1.4 mm.

Aug 19 1900 Cat no 16047

or continues pale & hd hard still plenty of larvae feeding, some rather small!



XVIII

9/6

Egg by 9/15/26 "Haemaphysalis pumilio" etc. June 16 1900.  
Laid in a row side by side in edge of leaf on stem.  
Elliptical, flattened above & below, wedge shaped the  
large end somewhat truncate. Marked like a thumb  
all over the net. Round, rounded, cell area defined  
as rounded shallow pits. Rows at angle of net from  
in certain lights as white dots. .6 x .4 x .3 mm.  
Later turned red.

One hatched June 21. Hd. rounded, slightly bilobed, erect, free, dull  
black, face whitish, irregularly bordered, looking like a  
confused patch of light & dark. Antennae small, red, moderate  
natural. Abdomen a little swollen; a broad red line on  
back brown, behind 5 a broad stripe of light, and on  
each side a small patch of light color of. and on  
small end one sd on each seg. post. coniform. A  
dimpled band on 5th seg. more defined and a little pale.  
The 6th seg. brown, young in the center of middle seg.  
Tubercles small, dark, on the short slightly enlarged  
at tip. Shield inconspicuous concolorous. Feet pale.  
(at adult stage)

July 25. Hd. slightly bilobed, a distinct shallow  
ventral notch, free, higher than 2. Some mottled  
on 1st patch some brown, some a yellowish white  
on 2nd brown and brown, irregular edged patch  
behind each. W. 3rd. Body somewhat thick. The legs  
slightly enlarged centrally and a little angular  
post. subangular, tubercles a little raised. Greenish  
white, mottled with dark reddish brown. On the end  
a broad sd line showing greenish brown centrally  
large V-marks, on a seg. joint formed, joint by  
margin add. 6 sd line, in 5th 5 each mottled  
on 5-9 side slight mottled with olive-green & pale  
a broad s-v band showing double white length  
and patch olive-green, and on 5th slightly defined. Feet  
pale outwardly. A darker shade on 5.

July 26. Hd. .55 as before the hair color dark, spotted  
the light color yellowish white. Red, yellowish white  
in ground but highly defined. 5th line pale brown,  
slightly through a little translucent, edged con-  
tinuous, obscure cutting the oblique valvate brown  
row of 5-9 into which the green V-marks are  
now divided. 5th band oval, brown, repeating

the oblique line at the extremities. A faint greenish  
pale line, very broad, compound round, of the pro-  
longation front of the oblique line, with a thin  
line at ends. 5th line broad, subventral greenish  
dark brown, mottled above centrally on seg. esp.  
on 5 when it forms a large spot. Feet pale  
outwardly. Tubercles a little enlarged. Body rounded  
rather than seg. slightly swollen centrally.

July 28. Hd. .6. Rounded, slightly above, head, lobes full  
at cheeks, head oblique, free from and higher  
than 2. Dorsally dotted with blackish brown leaving  
a small white ventral streak on legs and  
space behind ocelli, the latter reticulate. Body mottled  
a little tapering before not as behind, marked on  
before this the lower marks darker and more  
extensive so that this color predominates making  
the lower look brown with yellowish white line  
of which the central oblique bordering the oblique  
brown patch below and that on 5-9 fold are most  
distinct. D. line showing greenish, pale.

July 29. Hd. 1.25. Same. Body also as before moderate  
cylindrical, thorax and central abd. incision small  
and fl. rounded, a little projecting, and feet thickly d.  
Heavily mottled with black brown, d. line obscure  
greenish, lighter brown; sd oblique fine and sd  
a space on 6-9 yellowish white, broken; a similar  
colored longitudinal broken seg. 1 s-v line, 2 faint  
lines in 5-6 space and a distinct median ventral one  
all somewhat prominent and more dotted. Feet  
dark, the anal only pale ventrally. (Fall straight and  
keep still like a dead twig when handled)

July 31. Hd. 1.55 as before the hair color dark, spotted  
with the lower hairs suspended to J  
before July 1 and 2 strong in the net, very visible  
but July 6-7 numerous. (Let them go)



917

*Loxostege obliterata* from Mr. Challenger on  
showing grey. Egg in patches overlapping like  
Meyers. Pale yellow translucent elliptical flat  
Stage I colorless, feet green, tubercles small & black, setae  
moderate all directed forward. On 6, a 3:4  
1st + 2nd, 11:12 + 13 no subpretarsus; on 3rd: 1st + 2nd 6:11;  
4th + 5th, no 6th; all normal. Hd rounded, flat before.  
Ocelli, apex wide to ocelli long; 1 bristle conical  
in a large patch. Colorless & black marks on lower  
part of head, beneath brownish. On colorless with black  
black tubercles later than body. On and fl. feet  
colorless. Setae i-iii pale, iv + v dark. Sprockel small  
round. Hd about 25 mm. Sucking well marked  
cylindrical, occ. of tapering at distal end.

Stage II June 20, 1st + 2nd rounded, head free from 2 colorless  
tubercles, brown rounded, ocelli black. Body transparent  
whitish, feet green, edge of d. round whitish & black  
sign. Tubercles small, black but 11 + 12 + 13 a 3 + 4  
and 11 + 12 (cp. m. 1 & 12) very large. feet black.  
Marked concolorous, immixt; setae pale slender  
vi present, vii of three. Shape moderate, not especially  
glance more strongly tapering, cylindrical, normal.

Stage III Same but 1st. Round marked and black tubercles smaller  
June 21, 1st a black of leaf under a few straws  
fine silk, no rolling in feeding. Hd slightly flattened  
small round projecting, back of apex only with 2, d  
to vertex greenish, head rounded in lobes, ocelli  
apex & antennae & spiracles black. Body normal trans-  
parent, greenish from feet, edges of dorsal white. Tubercles  
large, slightly elevated, blackish tinted. 1st part  
4-4 and iii of 6-12 (cp. 11 & 12) larger and feet black.  
Marked transparent whitish; tracheae of 12 white against feet  
Hd 1.6 pale luteous, brown dotted in lobes, oblique  
over reticulated, and slender, setae a brown v.  
Body light flattened, round tapering, luteous & yellowish  
edge of d. round a subapical band whitish tubercles i-iii  
on 2-12 very large, feet black shiny. On colorless  
black edged both. iv + v colorless, vi slightly blackish  
dotted (See inflated)

like eggs but  
thinner, lined  
with yellowish  
white, 8x.6

32 49 74 111 117 <sup>6b</sup> - XXII

918

Egg from 2 looper 18949 *Scirpophila cellinella* first laid  
June 20 elliptical, well flattened above and below  
the end slightly depressed, the other rounded truncated and  
a little swollen. Shiny dark green almost olive  
color. Densely finely reticulate the cell areas concave and  
on the very apex are bearing large and strongly concave look-  
like a thimble, which is the cause of the head looking  
swollen. Size .6 x .4 x .3 mm. Later turned dull  
dark red with central dark green maculae.

Stage I June 25 - Rounded slightly bilobed, luteous, luteous  
ocelli black, head oblique, neck. w 2 ± Body moderate &  
rather thick, incision distinct, feet normal. Pale uniform  
pale yellowish green tinted the tubercles rather large  
slightly elevated, slender, obscure. Dorsum & venter  
marked concolorous darker than the sides. No maculae  
except a faintly traced brownish sub line. Setae short dark  
(apex not visible) (on 1st not fixed) Became reddish green from  
food with faint line of narrow brown line a dorsal line  
of and under with a black on 6.

Stage II June 29 Hd slightly bilobed higher than wide, crest free  
dual luteous greenish ocelli black. Body moderate,  
central seg. not much elongated. Tubercles rounded &  
slightly elevated, concolorous, setae short dark.  
translucent yellowish feet green, very fine brown dotted  
the dots forming obscure wavy longitudinal line a  
line, brown spot last on 6. The head is brown ver-  
mally forming a distinct shade, likewise directed  
in all forward line. Feet normal, oval d, the plate  
not extending them, without brown dots.

Stage III Hd .75 Rounded slightly bilobed, flattened before, higher  
than 2 but head oblique, pale luteous faintly brown  
marked, white on head and at margin of shade. Body  
moderate cylindrical smooth, incision folded.  
Tubercles obsolete but setae rather long black.  
all distinct visible i-viii, 10-11 & 12 each separately  
both on head and body black pointed hairs. Green  
mostly by transparency, central brown marked  
only by the large brown spot on 6 resting on 1st of  
obscure with lines marked also with very faint  
longitudinal whitish lines separated by pale  
brownish dotting. Brown ventrally. abd feet  
concolorous, the blackish shaded, white line on d.



24, lat. obliq. sv & v. the latter a most obscure.  
 Aug 1900. Hd 1.1 rounded, slightly bilobed, s. a little  
 flattened, free. oblique; free. faintly purplish smooth  
 body moderate, eyes slightly annulate, a little  
 enlarged of the lateral concolorous tubercles.  
 setae rather long black. free oblong, dotted  
 white lineal - d. sd. lat. angust. - tubercle line  
 yellowish sv; line white. fine. A dark brown  
 spot edged with clouded pale brown above spiracle  
 on 6. This spot brown dotted. Tubercle concolorous  
 and somewhat, ventrally lined. Incision 5-9  
 faint, whitish.

Aug 1900. Hd 1.7 rounded, head oblique flat, 12  
 almost obsolete. Green s. free not to vertex; green  
 subcylindrical, tubercle with white, tips of minute  
 greenish brownish. Body moderate normal  
 head flat with small just joint bearing c. seta  
 a shade than the subventral furrow. Tubercle small  
 white distinct brown. Body green, a dark free d  
 line with central broken white line; sd line and  
 a small white, obscurely dotted and triplicate  
 line faint broken white line above spiracle, as on  
 the 1st, then a s. v. space with trace; stage pale  
 side between the latter and an undeviate, all  
 obscure and broken into dots. A brown patch  
 above spiracle on 6. Epimeral pale ochraceous  
 This last 2, 9, 10 shaded with ochraceous. No dis-  
 coloration. Tubercle Central incision for pale yellowish  
 July 8 faintly appearing

919

Aug 1900. 16039-40

Strongyloides, etc.

Aug 1 1900. Larva in little guttula with green but  
 loosely attached each falling off. Spherical with some  
 small flattened base; are faintly reticulate. The cell  
 walls rounded, hexagonal, concave. Prothorax somewhat  
 thimble like. No other sculpturing. D.S. H. 4 rounded  
 whitish, faintly yellowish tinted not shining.  
 Lateral irregular red spotted

Watched Aug 9 Hd rounded, pointed at mouth, upper part  
 pale brown shining. 3rd body round white translucent  
 no warts, just blackish by transparency. 1st slightly  
 humped. Cth hemispherical blackish. Tubercle moderate  
 rounded slightly elevated blackish. Setae long, some  
 dark with distinct pale swollen tips. I found with  
 ii backward, iii forward. Anal pt blackish rather large  
 feet normal, 8 weak, 7 very small plates. Setae  
 body uniform, slightly pale ventrally, 12 scarce enlarged.  
 dorsal 6 ii & iii on it, a d. v. 12, 15-11 & 12 on it. No v. 12.  
 all dead leaves OK. Larva under a delicate  
 web to II at least Aug 16 Hd 4 small dull blackish  
 face & antennae white the latter distinct. Setae small  
 flatish tips. Mouth brown vesicle black. Body in ventral  
 12 a little enlarged. Sordid whitish dotted with  
 brown, plates dark but small here corrupted from  
 before. Tubercle small black, setae moderate  
 tipped

Aug 29 Hd 4.5 Rounded, rather round. Sordid brown  
 a black shade each side & above narrow band  
 above it & leaving a whitish band below mouth from  
 setae coarse, pale. Body robust. Setae small, 1st v.  
 12 a little enlarged. Sordid brown, a rather broad  
 shaded d. blackish band and numerous small  
 rounded spotting on the side. Setae coarse pale  
 enlarged at tips. Cth dark shaded at sides pale  
 centrally, and well corrugated. Feet 9, 11 small, 12, 13  
 Oct 4 Hd .6 (small) small to body round. Larva than 2 but  
 free dark brown, blackish on the sides. Head flattened  
 frontally, eyes slightly annulate near the distinct incision  
 12 a little enlarged, slightly tapering towards head. Occum  
 broadly ovate brown, dark pointed reaching iii, uniform  
 with no trace of a reddish swelling at tip. Cth blackish  
 brown but obscurely small corrugated; legs 9, 13 dark



Below iii whitish translucent, mottled with a few red lines  
 Tubercles distinct, though small & round, brown black.  
 Setae stiff, pale, slightly enlarged at tips. Feet as before

920

On butterbeans, Stung Wren Mt, Va. Aug 13 1900  
 Hd. 2 mm Rounded, broad, below 2 mm from 2 but  
 not retracted, antennae divergent, rather long. Whitish  
 faintly green. Body moderate, rather cylindrical  
 tapering a little post, incisures not strongly  
 cut. Translucent green, d. space a trace darker  
 with green vessel. Sd line yellow, 2-folds  
 broken into 2 dashes a each seg. ~~Sub~~ all  
 faintly spotted with darker green. Markings  
 invisible concolorous. Tubercles & setae obsolete  
 Feet normal, 7 smooth, 13 projecting (hooked)  
 Last Aug 16 Hd 2.7 so pale green shiny, the  
 emarginate lobes white, green & cells  
 black. Opaque pale green with darker green  
 spotting. Long hair along the Sd line which  
 join post into broken rings and along  
 spiracle from oblique hairs. Sd line yellow  
 broken with 2 spots per seg. Spiracles  
 reddish. Feet normal, shape slender &  
 a little flattened anal feet projecting  
 & divergent. (All dead by Aug 19)



May 14

1912

somewhat ring like

924 = 495

[unclear]

dioica

On slightly turning back capsule (Hovionea dentata?)

Stony near peak, Aug 16 1905. Scattered on back of

leaves solitary but many on one plant and

none on others. In various stages at same time.

Egg. Flat at base, subcylindrical, wrinkled along the

base broadened soft, somewhat irregular

in shape the broad surface not always

circular. About 20 vertical ribs confined to

inner calcification at vertex, distinct fine

cross striae from, fainter reticulation at

vertex. Translucent white. D 5 height 4 mm

Hd 3. Rounded, whitish eye black mouth brown.

Body cylindrical, feet normal, all translucent

whitish feet green. No perceptible tubercles;

setae fine white, moderate.

Hd 4. D. Body thick &amp; robust with distinct

incision at a triple enlarged. Tubercles a

little elevated conical, transparent.

Setae white, distinct.

Hd 5. Round, feet before, lobed, whitish, ocelli

black, mouth dark brown. Body thick, 16 a

little enlarged, 13 small, subtriangular. Feet

20 equal. Translucent white, distinct tubercles

conspicuous; no warts. Setae white, distinct.

Foot green, but no color in head. Some

acanthus 6 mm &amp; length long &amp; thick. Several

greenish a few tubular fine black warts, long

clawed.

Hd 5.5 erect, slightly bilobed, whitish before, trans-

lucent white, vertex black powdered, ocelli

black, labrum blackish, quadrate. Body

thick &amp; robust, 12 a trace enlarged, feet normal

slender. Translucent white, green tinted, foot

green, edge of 1st &amp; prothoracic tubercle on 2,

14 + 14 and 11 a + 11 a 3 &amp; 4, 1-11 a 5-12 all

marked with deep black. 11 the largest of the

line.

I was done Aug 26

More raised by Miss Pollock, and May 13, 1906

Col no 1811c

Spotting. Setae distinct, finely brownish, tra-

dial line white, white shaded about it.

(Increasingly confluent by many more at the flared base)

On thorax 14 + 16, 11 a + 11 b, 14 + 15, 11 separate, 16

2-banded. On abd 1 a + 1 b except on 12 when

14 + 16 form a square. 11 large above the brownish

spine which is much larger on 12. 14 and 15

in line, finely marked on 5-9 though becoming

less approximate post, on 10-12 separate on

the latter by a considerable space. 16 high.

17 a thin transparent hy plate, scattered hair

not a tubercle. Crotchets few, on 11 a + 11 b

flared only. Shields not marked on thorax.

That Aug 21 Hd 1.4 whitish with a broad band of confluent

black-brown mottling on the face &amp; head lobes, marking

below punctate on crown. A moderate, distinct at apex;

mouth brown, ocelli black. Rounded, scarcely bilobed

more than 2, not retracted. Body cylindrical, a little

flattened, thick squarish. Feet normal, rather slender

torus ended brown edged by a black line (11)

somewhat diffuse above a subventer whitish distinct

whitened about spiracles. Tubercles 1-11 black,

rather large, a little flattened, 11 double the

whole length, united 2-6, separate 7-11, approximate

on 12; 14 and 15 in line, united on 5 &amp; 6, nearly as on

7, separate 8-12 more so post. 11 largest

2d. and Setae moderate, slender, 8-banded, mostly

faintly. In these lower stage no down off leaves

no trace in any time eating at night well on back

of leaves as before. Setae thin, brown, dense &amp;

various. Back of head long brown standing to black

at apex. 5-8 white, 9-12 black &amp; a narrow marked

line.

I was done Aug 26

More raised by Miss Pollock, and May 13, 1906

Col no 1811c



922

Eggs by ♀ *E. alabasteria*. Cal. 16046 Strong Man  
 Ala. Va Aug 15-16 1900. Pale whitish yellow, later  
 pink with reddish central band. Rounded, elliptical  
 one dimension less than the other but without  
 flattened areas subtransverse at diameters end.  
 About 15 strongly prominent ribs with fine 11 cross striae  
 the latter slightly raised throughout. Ends confusedly  
 reticulate. The ribs merging in above at the  
 small end. Rib not always straight, sometimes  
 one shorter than the rest. Size .55 x .4 x .35 (like 900)  
 Some hard but most attached edge leaf.  
 Hatched Aug 25 Hd. rounded, erect flattened before pale  
 later shining. W. 3± Body long & slender white  
 on the sides, dorsal & venter somewhat broadly  
 dark brown. Cth. lateroventral a faint whitish narrow  
 line on thorax. Setae short with enlarged tips. Blackish.  
 Later solid, d. stripe broad, ventral 2 narrow s-v  
 lines enlarged by a spot at center of segs. Segs.  
 faint annularly annulate at catagogs.  
 Shed Aug 30 Hd. 4 rounded flat before face, solid with  
 a transverse line of eye in center a white streak  
 on face of each lobe. Body slender, many-annulate  
 solid, a brown band red-brown d. band, pale  
 line a dorsal, faint on 2 last reaching anal flap.  
 s-v line narrow, faint, represented by seg brown  
 dot. Body annulate. Feet pale.  
 Shed Sept 3 Hd. 6 rounded, slightly bilobed erect, faint  
 white with a band of brown dots on face of  
 each lobe and next on antenna above d. Antenna  
 blackish marginate, mouth cavity pale. Body  
 rather slender segs annularly faint annulate  
 greenish white on the sides, a dark brown d.  
 band. Mark on the seg a cth which is partly  
 obsolete but reaching end of anal fl. A s-v row  
 of brown spots before VII, fading a line a dorsal  
 and with faint brown streaks between a abd. seg.  
 Feet pale outwardly, brown thick on the edges. Setae  
 short stiff dark. Sv fold slightly whitish.

Shed Sept 8 Hd. 7 white heavily mottled with brown  
 & black, leaving a white streak on face of each  
 lobe and a range of white. Body slender, fine  
 (±40) annulate, dull yellow on the sides. Back  
 with a shaded brown stripe enclosing a darker  
 middle d. line and marked a streak with black  
 on the incisions, enclosing other a white d. streak  
 and faintly bilineate in pale at the. Irregular  
 broken oblique lat. line. Venter broadly  
 shaded in dull blackish, leaving a s-v & v pale  
 streaks. Setae short black inconspicuous.  
 Shed Sept 16 Hd. 95 Sv. Body slender long somewhat  
 shrunken, as before, dorsal pale yellowish brown  
 with d. greenish tinting, and s-v 2 pc sep black  
 streaks, also faint faint brownish line at  
 apex with obscure brown streaks. Venter broadly  
 nearly black, feet pale outwardly and bases of a pale  
 ventral line in black streaks. Evidently in *Bibionidae*.



C. J. Chitt  
 11/17/1900

923

Eyes of *Phasia hasegawai* from Mr. Chittenden Sept 18 1900  
 slightly over hemispherical, base rounded under. Short  
 of pedicel ribs dividing & alternating by a few before  
 apex: many on area finely reticulate. The area  
 striate but the ribs narrow and with indistinct  
 to cross ribs on side of ribs. Pale greenish  
 translucent. D. 6, height 4 mm.

Stage Hd higher than wide, lobed, almost perfectly  
 slight, nearly to vertex, antenna long; free of 2 prominent  
 flat. Lateral brown, subventral dark brown area  
 around mouth black, epistoma reddish, subventral  
 pale. W. 2.5 mm. Body slender moniliform,  
 smooth abt feet 9, 10, 13. Whitish translucent.  
 Pale green from blood. Cth trapezoidal, black  
 small but distinct. The feet blackish, abd  
 parapsid obtusely no distinct shields. 12 enlarged  
 tubercles small but round & distinct black.  
 normal no subprimaries in - ii in thor. capsule  
 iv of abd below corner on 11  $\frac{1}{2}$  to iv

Hd .45 Higher than wide, mouth broad, slightly  
 openish. Sclerite lobed, flattened before. Green,  
 head outline of high & blackish. Long, well black  
 in close scutellum, jaw reddish. Body slender,  
 moniliform, 12 enlarged d. Feet 9, 10, 13. Trans-  
 parent, narrow white sd (below ii) and the line.  
 Tubercle iii on 5-7 and less on 8 enlarged, black.  
 others also black but minute. Setae long  
 black, pointed, subprimaries present, normal.  
 Feet all pale and concolorous, no shields a plate

Stage Hd .7 High, rather before, head oblique, vertex  
 granular,  $\Delta \frac{2}{3}$  to vertex, the lower pieces broader than  
 above and concolorous with it. Antennae moderate  
 blackish rings green, ocelli blackish whitish ringed,  
 setae black. Body somewhat ref. - before feet.  
 12 slightly enlarged d. Setae tubercles whitish with  
 concolorous black hair points, iii on 5-7 somewhat  
 longer & black, longest on 6, and very conspicuous.

from irregular white line, viz. geniculate d. small  
 & subcylindrical, adducted (above ii), sd (below ii), stig, some  
 which broader than the others, narrow. Setae  
 blackish, rather long, tubercles 12 somewhat elevated  
 but absent on 7 & 8. The feet brownish at tip. Setae  
 pale concolorous; iv below the stig white line.

Stage Hd 1.2 as before, green, ocelli black centers  
 body slender, 12 a little enlarged. Feet 9, 10, 13  
 cylindrical, bicolorous a little narrower. Translucent  
 green, 8 glands in 9 large, pale yellow, conspicuous  
 white ad-d. line narrow, under sd (i & above ii)  
 narrow lower sd (below ii) and near the sd narrow  
 white stig, all as before. Tubercles distinct, a little  
 elevated & small, white, iii 9 5 & 6 black.

Feet concolorous, clasper & spiracles whitish.  
 No shields. Setae blackish rather long. iv below  
 on 5, below lower 6-8, opposite 9-10,  $\frac{1}{2}$  to 4 on 11,  
 lower 6 on 12. i-ii  $\square$  12. Lines irregular edged broken cross  
 stage Sept 12 Hds 1.8 Round somewhat, slightly lobed, flattened  
 before oblique, free from 2. Translucent shining green  
 abd. i pale yellow with ocelli black. Body slender  
 moderate, 12 enlarged d. Setae no shields with white  
 line. add narrow wrinkly, sd (between ii) narrow  
 upper lat (below ii) and stig narrow. Tubercles white  
 iii 5-7 black but small & inconspicuous. Spiracles  
 white, narrow, black rimmed. Feet green, abd on  
 9-10, 13. iv below spiracle. Setae blackish but obscure  
 & dense as has the green darker green (more trans)  
 esp along dorsal and above stig line, making the  
 line more contrasted. Black tubercle iii distinct white  
 length, longest 6-8 but plain 5-12. Hd brownish a tube  
 W. 2.0 mm.

Specimens Sept 16 large pale web.



Np 4/1901

924 = 387

Egg of *Cingilia catenaria* from Miss C. S. Paul, Wauquett  
made Sept 25/1900. Laid alone in box. Elliptical, gently  
flattened in 2 sides, one end slightly and sharply truncate  
making the egg not much longer than wide (1.8 x .7 x .5 mm)  
the other end slightly depressed rounded. Truncate end  
slightly concave. Minute, wrinkling, rather fine, reticulate  
irregular hexagonal, the line slightly raised. On granula  
areolar flat. Truncate end very faintly reticulate, the  
margin a smooth rim, a dark spot at truncation.

Bale yellowish green soon turning pale fuscous (Oct 13)  
Egg hatched. Larva about 24 Feb 1901. Hatched Mar 17 1901

Head rounded, not bilobed, smooth wider than high, 5 median  
blackish, pale brown on the face - w + 3. Body  
cylindrical, apical, subventral, rather short  
moderate but irregular feet and joint 2 whitish  
the rest into bands, narrow but still broad sd and  
very broad ventral dark brown bands. Tubercles  
not elevated; setae dark short tips enlarged. Legs  
bluish, rather coarsely annulate. Td the feet gray  
later shield plate & tubercles blackish. All brown,  
lateral pale with purple, the d. band a pale line sd and  
ventral all faintly greenish. The dark transverse & the tube  
detached in the whitish area of 2.

Shed Mar 26 Hd. 6 mm, erect rounded, moderately bilobed  
lobes full, a rather high, pale yellow shining, a gray  
patch at vertex of each lobe; mouth brown, large  
ocelli black, richly annulate, moderate; tubercles  
elevated, rather large but conical, setae short  
dark. Shields all brownish, annulate, wavy.  
A narrow black st. line absent on shields. 2 graduate  
lateral black patches per seg, obscure joined by  
subcostal brownish line & 3rd lines. A  
narrow brown s-s line brownish with blackish  
apical area. Ohann greenish subventral  
brownish ventral line. Feet dusky shaded.

Shed Apr 2 Hd 8 mm rounded, pale yellow with white  
black spot on apex of setae, w. eyes, a line on back  
of occiput and patch at apex of s-s and apical  
antennae short brown annulate. Body pale yellow, sd  
and anal feet with 4 black spots, legs shaded and side  
4 2 also spotted. sd line fine black, not cutting

shields, lat & stig brown, broken at spiracles and  
joined by lines. Black patches, base of line just  
below s-s fold. s-s line black, subventral  
advental double, brownish. Spiracles black, in  
whitish areas. seg annulate, not shining



925

"Lasiacampid larva found under a rock at Las Vegas Hot Springs N.M., Feb 16/1901 (Wilmatte P. and T. D. A. Cookrell). Close by were many oaks and pines (*Pinus scopulorum*)."  
 Hd rounded smooth, sutures not depressed, slightly higher than wide, clypeus small, velvety black slightly mottled with gray esp toward the sides; sutures and those of jaws & broadly lined in gray; clypeus dark, labrum dark, epistoma grayish. Antennae distinct moderate, ended column color. Hair 1 & 2 moderate, black above reddish about smooth. w. 3.6 mm. Body curved, flattened ventrally, arches d. 12 very abrupt prominent. Segs rather strongly 5-segmented. No distinct warts. Lat. & v. warts of rounded prominent, otherwise warts indistinguishable, only the 5th one (vi) slightly raised. Spines covered with rather stiff black hairs, slightly emphasized on ii and vi. Setae near white hairs, often end a little curling, very sparse on dorsum, thicker subtended on the annulations in a lat. band, large and again thickened 5-8, esp toward incisions. Black and gray, slightly reddish overcast. The feet reddish. Ground color black; a series of dark gray quadrate d. patches, each a seg containing slight tufts of pale hair just behind joint of reddish streaks; more obscure fainter broken reddish streaks in 5th position. Lat again irregular shaded with gray containing white hair. A pallid area about vi slightly tinged with reddish. Feet dark bristly in pale vertically. Anal plate and feet dark. 2 dorsally broad whitish slight raised of black a small line. Sutures dark gray spotted obscure with flesh color along pedal line. (In fresh larva white tufts will be along d. suture on lat. Color dull by hibernation.) Dec Feb 24  
 Found Mar 4 Hd rounded flat before. ocelli

at all lobed, a small less than  $\frac{1}{2}$  per. a piece small fusiform. black, fine becoming gray powdered, not at all shiny, all sutures and white; hair 2 moderate black. Long. w. 4.5 mm body as before but highest colored. black with small range marks and restricted white tufts; c. d. and anal pl. faded gray white, the former bisected by a black vitta wider behind and with some black powderings posteriorly. The range is distributed in 2 add anal dots per seg. the rest the longitudinal, the feet transverse, 2nd dot minute, pleated but less rounded, the anal one larger, more obscure, white rather than range on the thorax, a small patch below spiracle and the slight humped hairy vi also range shaded. White tufts are a row of small ones and a seg. d. 3-13, short, subterminal, the hair converging, 2 tiny patches. 5th just to the 2 1st spots, which last area to humped irregular about tufted, reaching further dorsally in the incisions. Lat & d. tufts in broken gray white shading. Primary and large 2nd row black. fine long, rather numerous; hairs from vi below white. Body unusually Lasiacampid-shape moderately flattened, warts obsolete, vi slightly prominent, 12 without enlargement. Abd. feet black with 2 ventral white lines. The 10 abd. claspars dull reddish.  
 Shed Mar 29 Hd 5 mm Black, grayish powdered, ocelli small glossy white as before. All same. Gray shading fulvous, reduced, add d. 5th just dots range indicated but small, other dots more whitish. Setae of plate lantern gray, black powdered.



MAR 1901

926

*Prodenia cornuella* (desc. for var. *distendens* from brown larvae) I Hd rounded bilobed, shining brown black, clypeus moderate, smooth slightly projecting, antennae small, normal, w. 3 mm. Body slightly enlarged at joints 3-4 and 12, cylindrical normal the feet small, equal, the one black, whitish a red-brown dot. Patch on 5 & 11 with faint trace about 14 on 6-8 of red brown cth distinct transverse slight expanse behind, with lg. shield and tubercle not brown-black. Tubercle distinct rounded moderate normal. Anal shield small brown black.

II Hd rounded, wider than high slightly bilobed brown full a front,  $\Delta \frac{2}{3}$ . Greenish black above a brown patch before a each lobe; w. 8 mm. Shape same and color, the apex black. Lat. 2 subshy brown reddish and anterior trace of a yellowish white line. Submentum slight reddish.

III Hd rounded bilobed, about as high as wide greenish black above w. 6. Body shaped as before but thick and plate scarred, variegated obscure mottled. Tubercle minute, setae small. Green the dark brown patches on 5 & 11 large, covering the spiracles and a small rounded sd one on 3. Numerous horizontal white lines consisting of d, sd(2) lat, subshy(2), feet all pale.

IV Hd 1.3 as before during brownish testaceous another high,  $\frac{2}{3}$ , cells large black. Body cylindrical enlarged at 3-5 and tapering to head, enlarged also at 12. Feet moderate equal. Shield and tubercle obsolete - setae minute except at articulation. Green, d line narrow white obscure; lower sd narrow brown distinct, white shaded with orange, angles on humeri on 12. The 2 subshy || narrow subtranslucent by mottling giving a brown, sharply edged line center with brown and shaded with orange in spots. Cth line broken, dotted, confused with orange.

II 3.3-3.67

Dark brown sd patch on 2, lat on 5 & 11 as before. Body more or less mottled with brown below the stigma. 3 white lines cut inconspicuous cth the feet brown, abd green, and brown shaded. V Hd as before shiny brown reticulate with darker on the sides, the same dark color shading clypeus, labrum and edge of pale (very slight) line. Body same, the underparts less marked. Green finely mottled reticulate with brown. The line obsolete, but in the mottling except sd which persists as a series of white dashes with center 1 seg 3-12, red dash joining the lower edge of a brown black patch; then on 3 and 12 longest. The central ones smaller & sometimes most developed. 6 lat patch on 5 & 11. Upper s-v line indicated narrow, wavy reddish. d line in distinct, distinct on 2-3. Cth obscure brown, with 3 pale lines and pl conspicuous. Feet greenish. Slight angular black dots on 13 d.

VI Hd brown, rounded bilobed, a large reaching on  $\frac{2}{3}$  to vertex, brown marked as before, the nets not prominent, not retracted to 2. Body cylindrical normal, gently enlarged 3-5 and 12, tapering to 13. Feet moderate normal. Dorsal and finely mottled brown & whitish, the markings as before but somewhat more defined. Sd black. A patch narrow oblique on 3-12 edged below by a yellowish white line becoming a dot on 4, w the center on smaller or absent but those on 3, 11 & 12 persistent. Other line streaked on last trace except d on 2-3 narrow pale. Lat. patches 5 & 11 small or obsolete. Cth obscure with d line wavy on base of sd. Anal pl small obscure black dotting of 13 absent & faintly marked example spiracle black. Feet greenish. IV 5 above middle 6-8 above lower. 9 yellowish white  $\frac{1}{2}$  & 4, 12 brown.



927 (cf 938)

Yasiscampid egg Jonesboro, Coryall Co. Texas (Boggs Jr.)  
 Hatching Apr 5 1901. Chlorocampid but no varnish.  
 Laid in a patch, as long as wide, reaching half  
 around a small twig. Elliptical flattened at ends,  
 longer end square, truncate, rounded, the nearly  
 circular center raised; small end rounded. Laid  
 erect on small end, fastened together by gum  
 but the exposed end clear, the mass looking white  
 and the space between egg visible. Sided white  
 a dark micropylar dot. Surface smooth slightly  
 shining, scarcely discolored.  $1 \times .6 \times .5$  mm  
 Hatch by hole at truncate end, hatching Apr 1-18  
 $4 \pm .3$  rounded elliptical higher than wide, black, opaque  
 white & long 2<sup>d</sup> pale sides. Body rounded, black, the  
 ant edge of thor. joint pale and a pale margin at head  
 5-11 faintly ind. at each, sharp above, diffuse below  
 & sparsely lat. a. ant. a head. joint of segs. must be  
 post 8-10 pale white. head small but elevated, black  
 with small tufts of pale rather stiff hairs.



XXVI May 1 1901

929 = 645

*Alsophila pomatoria* eggs on apple from W. R. Smith, Lily Lake, Ill (Sept eggs). Laid in a dense mass twice as long as broad reaching  $\frac{1}{2}$  around a twig. Subcylindrical, flattened, basal end a little rounded, slightly asymmetrically bulging, micropylar end truncate, broad rounded, the center elliptical, a little depressed with a micropylar depressed dot, surface slightly shiny, obscurely reticulate, the truncate end irregularly shaped sometimes doubly ringed. Laid in a mass uniform for single egg though the flattened mass looks a little knotted.  $1.6 \times .55 \times .4$  mm.

Hatched Aug 8 (1901) 1st round with full lobes, head and thorax slightly narrower. Ocelli large; head round erect; pale lateral antennae scarcely a foot rise. Body a much brown velli black. w 3 mm. Setae short pale with hollow tips most distinct on body. Tubercles rather distinct, not elongated, the central segments are longer than thick. Feet not well developed. Ant. a very short, not used pair as of marked in black like the plantar. The other abd. feet marked venterally, each divided into two serrate parts, the flat side ant. smooth, darker on edges, bordered by blackish tubercles and pale leaf shaped unmarked faintly orange. Body greenish yellow, striped with blackish smoky in middle (appearing but not enclosing; and ii); head feet less than (sd) and a broad dorsal below-segmented diffuse ventral tubercles distinct rounded little elevated, black in pale rings. The feet pale, faintly smoky. As growth the dark shade brown faint and the hair looks all pale green with obscure pale lines; smooth shiny. The feet of 9 are as a black elliptical when retracted. Sept 26 1st rounded black, slightly bilobed, flattened, very pale green, unmarked, w. 6 mm. Ocelli black, not large. Ocelli large like faint grey rods

Body cylindrical, normal, not elongated, feet normal with very short, not used pair in 9, the darker pale. Tubercles slightly elevated but concolorous obscure, pale short pale. Green with some pale whitish lines, the space between more or less distinctly shaded with blackish. Line on sd double the upper narrower, lateral, sd the latter faint shade in the fold. Feet pale, smooth black. Shed Sept 30 Hd 1.1 mm rounded, slightly bilobed, a little oblique, whitish, faintly green unmarked or with grey green reticulation over the inner side of lobes as before, pale green, white lined. sd, head, broad subcap with pale greenish white lines, the space between sep. the head & sp more or less darkly shaded with greyish black, the venter not connected so. Csh dark, anal plate pale. Tubercles elevated, rounded, distinct but concolorous. Setae short, stiff, dark. i-ii in line, iii rather before spread, iv at base cone, v before, vi behind, vii a group of 3 setae, not scattered, all normal and monodirectional the 9. not being elongated abd. feet of 9 well formed by small. Sprouts black ringed, sd tubercles blackish, thoracic feet pale.

See 645 Hd 1.8



*Phiasma variator* Walk

XXX

930

ate willow

Egg from looper 16120 Denver Col, May 11, 1901  
 Elliptical strongly flattened rounded, no angles,  
 one end slightly broad only in a small area truncate  
 the other somewhat depressed smooth whitish  
 green, the other white distinct broad elongated the  
 anteriorly like low ridges esp toward the truncate  
 end, irregular somewhat raised.  $8 \times 6 \times 3$  mm  
 Hatched May 19 normal, rounded elongate. Hd  
 rounded, each pale reddish, ocelli small black  
 body cylindrical, smooth, green, elongate;  $\Delta$  head  
 brown, convex, and  $\Delta$  ante, over  $\frac{1}{2}$  point; sutures brown  
 feet spindly, flag large, rounded  $W. 35$  mm (Tubercles later small)  
 $\Delta$  pale greenish, a broad dark olive  $\Delta$  black 3-12  
 defining the s-v fold which looks pale by contrast  
 tubercles on pale spots  $\Delta$  black, setae short stiff, dusky,  
 very minute, enlarged at tip, normal. Setae faint olive.  
 May 23 Hd 45 rounded, somewhat elongate with  
 large narrow  $\Delta$  head oblong, pale dark brown, pale  
 black mouth brown. Body moderate, segs not elongate  
 rounded pale translucent green with faint  
 indicated narrow white lines, tubercles large and  
 elevated, much darker part, transverse, white  
 other dark dark like feet with very faint brown tints.  
 No tubercles, particularly no cracks. Setae cottony and  
 a broad purple brown ventral band whole length, even labium.  
 May 26 Hd 9 rounded free, large thin  $\Delta$  pale stem  
 color, a broad light brown stripe of fine anterior to  
 across center of tube. Body cylindrical, not elongate like  
 lucid green, but shiny, a faint diffused narrow brown  
 $\Delta$  line. s-v fold apparent white faint brown. The feet  
 black squamous, and of 10 black anterior of 13 green soft  
 in front. Tubercles whitish rounded, slightly elevated, later  
 and  $\Delta$  line but faint longitudinal white lines -  
 May 29 Hd 14 mm round, flattened, oblique.  $\Delta$   $\frac{1}{2}$ , with  
 propitely ant. moderate, divergent; green whitish  $\Delta$   
 $\Delta$  and white, mouth brown shaded. Body cylindrical  
 slightly narrowed before, several moderate, segs. dark  
 $\Delta$  rounded. Green faint white bands; the feet  
 a row of seg. slightly, subconfluent ventral spots and

Mass of feet 10 single brown. The same distinct pale  
 line one add. sd a broad slightly yellowish stripe on  
 a s-v fold and broken adventured. Tubercles whitish  
 green, rounded, elevated low. Skin short, obscure.  
 Brown from hd broad brown one lobe the edge of patch  
 mottled, brown mottled in center and  $\Delta$  D. Head pale  
 brown, faint pale line, a dark brown  $\Delta$  line and  
 broken s-v one, rather broad ventral a few marks  
 as a green from s-v fold broad pale

May June 3 Hd 2.0 green, rounded, flatly oval, whitish  
 whitish streaked about  $\Delta$ , anterior rather long, not  
 dorsal white, mouth pale, cylindrical, s-v fold distinct  
 narrow, segs elongate. Green, whitish over the  
 dorsum with add. sd a double dark, irregular faint  
 whitish line, s-v fold diffusely yellow. Feet yellow  
 normal. Tubercles minute, setae rather long but  
 fine dusky. Brownish shade at base of feet of 10.  
 Brown from Hd with a large darkish patch on each  
 lobe shading into reticulation at edge bearing  $\Delta$   
 mouth, pale. Body milky whitish, the s-v fold  
 broad, diffusely yellow, dorsum a narrow white  
 several obscure darker lines. The moth 2-4  $\times$  10  
 all and on 5-9 forming nearly complete canopy  
 bands are irregular dark chocolate mottling  
 Tubercles darkish, apical pale. The moth very  
 in extent and distribution. Feet of 10 darkish,  
 and pale pale brown

From ground June 7 (ent May 17 1902 cat 18115)



931

*Pyralis* internal feeder in *quercus* near  
 Denver Col May 11 1901. Hds. 2.1 Rounded,  
 slightly bilobed head flat 3-segmented & vertex  
 the suture depressed, bright red-brown, epistoma  
 pale, ocelli black. Body slightly flattened  
 segs strongly 2-annulate. C-sh. large but  
 rather narrow, transverse shiny black.  
 Anal plate very large black. Tubercles  
 small black; i & ii in line, iv + v normal. Feet  
 with crotchets in clasper. Dark purplish brown  
 black. Skin coarsely wrinkly, shagreened  
 spiracles rounded black. Two feet brown  
 setae fine, brown, rather long - i + ii ii + iii.  
 On 13 abd a median d shaped c on 2 a small  
 crescent before spiracle and contrasted.

Cat # 16539, Golden, Col (prairie near foothills) is  
*Melipotis juncto-brevellus* Hulst. June 5

932 (see 1023)

Eggs by 99 16223-4 *Leptactia californica* was some from  
 Ocala (infertile?) May 12 1901. Ovals just hatched, Col.  
 Low conical, practically spherical shining  
 nearly flesh color. Rather coarsely reticulated  
 shaped almost definitely reticulate & vitreous but  
 the lines broad and confused. D 1 mm H .7 mm  
 Hatched May 19



13 and 14 and 4 hair, 1 trs. Vi present 5-12  
 no hair. ii and upper iii hair black - rest  
 white, tubular. C-sh & hair 3 black;  
 2 detached a tiny vent. Hd black but great  
 shiny black. Body translucent greenish yellow,  
 with a faint dark brown, the feet black.  
 Slight red-brown shading about hairs.  
 Hairs long, fine. Later brown black spreads  
 defining a straight pale dorsal line.

Mid May 25-1st, 5 ± black. Body dark gray, warts black  
 i small, ii large, rest subequal, narrow, arising towards  
 a whitish d. line as a bifurcation of the very faint shield  
 by plate black, then black broadly, pale s-v, rather  
 long and almost equal, soft, scarcely tubular, not dense  
 (all shed, but got III in one from about 4 shed June 17)

Mid & IV June 24 are essential change.

Mid & V June 28 head pale reddish, gray d. stripe whitish,  
 a faint whitish space between iii and iv as in 1023  
 Hd 1.5 mm blackish in relation of lobes before.

French - life history C.C. 21, 210, 1889  
 5 stages - 1 larval



933

Eggs by 2 16/23 *Stethorus glauciformis* - *maritima* Deur.  
col. May 12 1901. Ellipsoidal, scarcely more flattened  
base than vertex, nearly 30 ribbed, rimming by a  
few transverse ridges the ribs pretty raised, then cross  
striae fine, indistinctly seen on the sloping side of  
the ribs, the ventral side has more distinct on the  
apices. Micropylar area small smooth, finely  
reticulate. The ocellus a little beyond  
the middle the lower 1/3 of the egg is perfect smooth  
and shining. D. 9, height .6 mm. Later with a  
red ring and spot at micropylar.

Hatched May 19 slender subcylindrical, flattened.  
Just emerged, head and antennae small, 12 slightly  
enlarged. Whitish colorless, translucent, smooth and  
shiny. Head, neck, pale buttons not large  
not rounded, faintly bilobed, full, broad. Pale buttons  
with black cells, erect, a narrow, entire groove.  
Tubercles small black distinct normal, setae  
short pale; feet colorless. Head .4 ± mm.  
Quiescent stage. (The preceding after others not touched)

2nd stage, 1st .6 rounded, slightly bilobed, large than 1st, the  
head full, head oblique, pale buttons with white line  
dorsal in lobes; each side no. 10-11 in a patch. Antennae  
enlarged, head pale. Body cylindrical, rounded, 12 slightly  
enlarged, feet normal, abd. 7-8 slightly enlarged.

Head whitish, slightly concolorous, scarcely compressed, a  
narrow white d. and line, broader stig. angula. Hatched  
Tubercles nearly black, feet pale. Setae moderate.

3rd stage, 2nd .6, head bilobed, large than 2nd, antennae  
enlarged, head yellowish, small, black. Body cylindrical  
moderate, 12 enlarged, 3-6 enlarged in rest. Green  
angula, subtranslucent, a narrow narrow white d. &  
st. line, a broad white subling band enclosing iv  
space 10. Feet normal, equal. Tubercles small  
round, moderate with dorside black, latter narrow  
ringed. Setae concolorous, ash colored. Feet all  
pale the abd. with small tubercles vii. Larva hatched  
from all shaded with tubercles black below  
the line. Stig. and slightly yellowish. Feet pale  
the dorsal tubercles. All as in green form.

4th stage, 3rd 1.5 Round, vertex slightly rounded, strong  
line, marked darker. Red, thickly marked with  
darkish brown on a whitish ground, dorsal space  
lighter by ground shining more; feet d. & st. white  
lines somewhat dotted broken. Stig. line broad,  
sharp, narrowed in insertion, white edge, broadly  
dull red & buttons filled including iv and v &  
the white narrow black returned spaces  
which is at center of space is also on 9-10. Venter  
pale, feet pale. Tubercles in rather large black  
spot. Setae concolorous.

5th stage, 4th 1.8 Same as 4th

6th stage, 5th 2.3 After hatching, round, shining pale  
brown, reticulate with dark, a dark patch each  
side d. Cyl. shining brown, a darker spot before and after  
on the abd. & posterior back with a side band, period  
d. & st. pale line. Body robust, 12 enlarged, 13  
1 truncate the foot nearly under hump, equal,  
broad small. Head marked, darkish on a  
light yellowish ground. D. line is fine whitish dots  
in center & segs edge of a dark band, st. line  
more continuous, lat. space bearing dark shaded  
stig. line brown, a ground color, filled with light brown  
and reddish markings, not contrasted, 5-8 space  
but a shade darker, marked. Tubercles in small  
brown spots. Feet pale. iv above center on 9-10  
Post. joint of st. of seg. pale, forming a trans d. band  
of pale on the dorsal of 12. Setae black ringed  
(apparently mature in the stage June 19. All fine  
in beauty. Had then inflated)



934

Looper found by Mr. Adler on the ground under  
willows near Selden Col. Desc. May 14, 1901  
(molt not fed) Hd 1.6 round erect squarish, 2 ocelli  
high; whitish a large black patch covering vertex of  
each lobe and  $\frac{1}{2}$  down side; front, bearing no. sutures  
small, pale. an angled patch on vertex and on  
in lower part of 2 pointed above; epistoma pale  
mouth black. Body cylindrical normal segs  
not elongated, feet rather small. Ground  
concolorous white with many black marks and  
fine black red marks. A dorsal and sternal  
diffuse red bands, the latter broken at spiracles  
by white ground color. Long black spots about  
i, ii, vi with numerous smaller dots between  
i & ii black & small; a continuous black s-v  
band covering vi below which the center of feet  
gray dotted with the scattered black between  
vii and viii and black mottled sparsely.  
The feet & spiracles black. Abd. was gray  
like center with black tubercles. No shields  
2 and 13 white & black spotted, concolorous  
black about tips. becoming pinkish medially.  
Ant May 30 1901 Cat no 16491

*Proctotrupis occidentalis* Pack

Bred Tachinid  
*Tachina mella* Walk

935

Astrans eating flowers of a bean plant (H1)  
Foothills, above Selden Col. May 14 1901  
Hd 3.3 Shiny black. Labrum yellowish anterior  
at base pinkish pale. Body black, the feet &  
abd. pinkish pale. Warts large normal  
Aristiform I & II with shiny bases, i was  $\frac{1}{2}$  as  
large as ii which is elongate. Hair abundant,  
bristly, sparse, hunched, rather short before  
long from 12-13. Warts from i and a few on  
a side of ii are yellow, the rest black mixed  
with white, mostly white from iv-vi. Warts  
iii orange the rest black. A light yellow  
d. line broken into 2 spots for seg. Distinct  
most of them lanceolate, a line on 2-3. No  
shields, 2 with light warts, normal.  
Ant Selden Col. June 4. 2 lin near dorsal  
- few dots. Warts iii black like others. Hair  
mostly all yellow, warts a few black one wing  
Some larger white was post.  
♀ ant July 13 1901 Cat. 17423

*Myantesis* *superba* Str. = *nevadensis* Wlk  
+ *immaculata* Hbst



936

Arctian from Mr. Salan Fort Collins May 12.  
 Eats alfalfa. Hd 2.7 shiny black, epistoma  
 and base of antennae pale. Body brown  
 black abd. feet pale reddish. A broad distinct  
 sharp d. line narrowed between i, cream  
 white pinkish shaded in measures.  
 marks black hair bristles sparsely scattered.  
 small less than  $\frac{3}{2}$  ii, ~~surrounding~~ bases, normal  
 hair all black even S-V, longer on 12-13.  
 i with small, ii with large

Curt

*Spontis fignata* Don (f-pallida)

937 *Astragalus mollissimus*

Microsides? egg on back of leaf at top of plant.  
 plant, Denver Col May 14 1901.  
 subcylindrical rounded about flattened below  
 16 vertical ribs, narrow, elevated, expanding  
 the vertex running to anterior smooth  
 micropyle cross-striae fine, parallel, not  
 raised, marking the ribs and spaces. H. 8  
 W. 6 mm. Hatched May 18 but died as first day



many at Sedalia Col. egg on twigs at base of but one  
 60 on list as dead thing. (See specimens)  
 more from Osage, Cheyenne Canon, Colorado Springs  
 in stage before last and young last, date, June 8, 1901  
 938 (4927)

*Chlorocampa* var. *fulvipes* on scrub white oak in  
 Platte Canon, Col. May 18, 1901; spinous regular  
 nest but several small webs mostly on the  
 eaten leaves. Slightly more web than *discreta*  
 Hd 1.2 round, black with pale 2 hairs. Shape as  
 usual; a broad genal d. band orange red, undul  
 3 thin per seg. must 20 post. 4-11, post v-3, about  
 middle of 12, a narrow narrow cream, ed line,  
 absent at ends; narrow more orange lat. not  
 trace of blue double between these. a  
 blotchy pale orange abg. band; s-v pale  
 grayish. Ground black, velvet in 12 and in  
 incision 2-3 and 3-4. Hair rather sparse  
 minus length of joint reddish white all over  
 Hd. 7 Same. bands more diffused, paler colored, another  
 shed May 20 Hd 1.8 Same but last stripe from  
 broken & so was practically obsolete. More  
 blue a dark post above sd line large patch  
 between that & lat. 1 s-v blue gray shaded  
 12-13 blue shaded. Hair reddish d. pale reddish  
 s-v. sd line forming a dot on joint edge of seg.  
 lat. edges of d. rays yellowish.

shed May 24 Hd 3. Same, see above. (got in larva)  
 more May 25 eating web than young larvae of oak.  
 Hd 5.7 round, erect the dorsal the grass like fine  
 a chisel-shaped piece of the d; velvet black. blue  
 powdered esp. along sutures. many 2 hairs. Body  
 cylindrical normal. 13 annular, fleshy; web  
 obsolete, hair subtrifid d. s-v. and on seg.  
 chit. rather scant. velvet black; d line  
 genal d. irregular marked. orange, enclosing  
 reddish d. hair, widening & brightest post v.  
 segs moderate. dorsal lat. or 10 about n 12.  
 sd line distinct. irregular broken in seg. narrow  
 orange, absent in 12-13, trace of lat. a substy  
 orange line on lat. joint dorsal and yellow

939

Scum. on old grasshopper, Platte Canon May 18, 1901  
 Hd 1.8 mm round bilobed, lobes separate, erect  
 feet before a little, gray white, a broad black  
 band over vertex of lobes, another across from  
 eyes but epistoma pale; black dots between  
 the bands. Body normal, not elongate, with  
 large black elevated tubercles and coarse  
 black setae. Back gray, ground whitish d. lat  
 gray between 1-11, a reddish sd band broken  
 into spots below; 1-11, the rest whitish. Lat  
 very marked, the substy fold white and on  
 segs. Venter marked & dotted with gray-black.  
 tubercle vi double or of 2 separate tubercles  
 vii more in line, rest as usual. vii moderate  
 separated. Plate spotted on body, unconfined  
 to 5 May 20. Ant. May 12 1901 ant 16660

*Sciographa perfoliata* Hubert. ? Common  
 more than 100. Wings whitish gray rather  
 common, brown stigmae, faintly line separated  
 by diffuse clouds. 1st band beyond seg. ant. a  
 patch at center & middle of wing edging pale  
 broad ill defined 3-4. Diffuse dorsal lat. formed  
 broken line. 1st band beyond seg. ant. with line  
 dorsal lat. distinct & whitish below.  
 Plate of many twisted white s-v tufts. 2 round all  
 black. Blue trace, dark in sd space, a black dot  
 & long post. dark & lat. space the latter cutting  
 lat. line & reaching s-v. On 3rd the dark is very  
 marked, curved edging a black space. Pale reddish  
 a fleshy ovality post. v segs in measures. Slight  
 sd ant n 2 black. A few black hairs d. from  
 prolegs i. Trace of white dorsal line on 3-4.  
 Spring May 30

*Chlorocampa tigris* Dyar  
*melanocoma*



940C wiggles like B but hd all pale brown  
epitoma whitish from white. Cth having black  
on edge. Head all brownish green. D. small dark brown  
but slightly elevated. D. pale dark brown.

940

D. small

Leaf types on young white oak Platte Canon Col  
May 18, 1901. Web, fold leaves.

Hd blotched with shield black, rest of grey tinted.  
The feet black, legs pale green. Tubercles small  
blackish in small dusky areas. 1st & 2nd all  
pyralidiform. A small brownish white with feet. Hd  
black, cth whitish. Antennae black at edge, the feet pale  
top of 2 & 4 black. Hd 1.2. Venter compact flat cream.  
3 large lively wiggles. Hd black 2.0 detritus whitish in  
face, cth greenish black on edges. Body brownish green  
blackish from front, 9 glands yellowish, or fold from  
opaque. Feet pale, 2 black. Makes a pupa a slight web.  
941

D. small 11 cut 11667

With 940. Hd pale whitish. Antennae. Body pale  
green with sd whitish stripes. Very out-  
spoken. Tubercles conspicuous. Feet pale.  
Shields not contrasted, inconspicuous. Whitish.

### Selecting for Bunk 942 (mixed like 940)

With 940 Hd pale greenish. Antennae, body pale  
green. Translucent. 9 glands with no line on  
tubercles minute blackish in which shows  
irregular a line. Head shining. 5 or 6 fold slight  
more opaque. Shields, feet inconspicuous, cth shining.  
D. small 11 cut 11667 B. Ant. June 10 cut 116634

### Selecting for Bunk 943

With 940. Hd. c. shield black. Body pale. Head  
mottled with red-brown, showing longitudinal  
lined, leaving pale space about the minute  
black tubercles. D. line narrow irregular sd  
narrow blotched brown. Hd. c. 2.5 or 3.0. Stems  
The feet black. Ant. 12. Brown bordered.  
D. small 11 cut 11660-1

944

Leaf types on young wild cherry with 940.

Hd. 1.0 Hd c shield black. The feet black  
and 1st c body reddish green, tubercles minute  
black, green with minute dark before.

Hd. 1.5 with shield black. Body green, head  
olivaceous shaded d, having tubercles pale  
The feet black, 13 green, feet short curved.  
Some with id. underlying red pattern black, cth  
pale brown red on front.

Ant. June 4 1901 Cut no 16532-3

945 (See 1138)

Grows on wild cherry Platte Canon Col,  
May 18, 1901. Hd. 1.8 rounded, squarish br-  
laced, erect, dark red-brown, very long irregular  
reticulate with pale yellowish. Dorsal sp.  
broadly red brown granulate d. & sd. brown line  
on a pale field, curved, a geminate, wavy,  
homologous dark black line on a nearly  
white ground, shading to brown on anal fl.  
5 & 6 ground yellow reddish marked behind  
pale faint brown line ventrally. Feet  
pale with over brown lined, tho. blackish  
interlined ventrally. Hd 2.9 or 3.0. D. line all  
black on a red ground becoming whitish into  
apically whitish same. On June 26.  
(cut not March 24 1902)

Doubtless *Erasmia tilipia*, at least  
have first like it. N. A. Erasmia x 11



946

*Hemileuca? gregaria* on white scrub oak Platte  
Canyon Col. May 20, 1941. Black with white  
scl line and broken trace of a geminate d. ant.  
0 round reddish slip mark on 5. Hd polished  
shiny shiny. Spine all long, branched,  
normal single d. n 10-13 anal pl smooth.  
Hd 1.1 ± spine d. 12-4 slightly longer, a few  
from 22 hairs, also c. 2 lat. Thor. minute.  
Hd May 26 2 ± shiny black, light. Spine branched  
all long, equal, those of 2 & 3 slightly longer.  
Black. Slightly white dotted at 1st pair pale  
22 hairs, which have black tubercle; and white  
lined - trace of a d. 3-4, sd distinct 2-13 ant,  
lts, broken by spine ② curved a broken 3-4.  
Lower pale orange patch behind spiracle 5 and 11  
latter smaller.  
Hd June 6 Hd 3. Black, 22 hairs white. Body black, thick  
covered with 2<sup>d</sup> yellow dots centered & black hair  
tubercle. sd lat & waved. Outstg hair yellow.  
broken; in some reddish. Spine all long, spinous  
black, some setae white. Elevated anal band  
spine 4 & 11 reddish.  
Hd June 20 Hd 4.5 same but lat & the feet darker  
marking red instead of black.  
H. major Dun (another)

946A On willows at Duran. Very bright, head plate  
and feet light mahogany red. Yellow spots confluent  
all over d. 1 lat. Spines making faint yellow  
except narrow red & ventral. Spine ① all bright  
brown, the long ones black shafted with brown  
spine at base of ②. Hd June 25 Hd 4.5 on  
willows near Duran

947

Traps on wild cherry Platte Canyon Col, May  
20. Very variable but probably all one sp.  
Hd broad, erect, rounded bilobed, anal white  
in general, a black band on vertex, no area  
after a lobes, one above geminate, spinous  
and white dots between, 1.8 mm. Body smooth,  
rather robust, normal, ant elongate, setae  
and lat

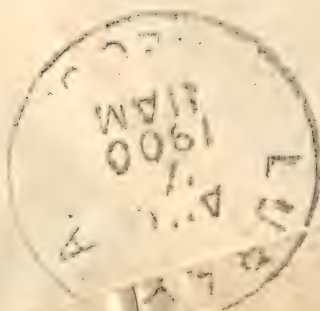
*vernata*

*Palaearcta vernata* Peck

This well-known larva, first  
described by Peck in 1769 and  
referred to in all works on  
economic entomology,  
occurred in the Platte Canyon  
Col., numerous on a bush  
of wild cherry which was  
defoliated. The larvae were  
not seen elsewhere and  
were reared on one tree,  
not exactly as *larva*  
*Alasphila pomonaria* which  
occurred in the same  
canyon

larva on  
and head  
soft spotted somewhat  
somewhat iridescent. Hatching  
just before, not before June 2. Full grown  
setae pale ± s. Body normal rather robust, not elongated, a  
small dark brown sd band & narrow d. line the whole of spine  
between irregular and with a small dot in center. sd feet broadly  
pale. Venter shaded in brown but leaving tubercle pale. Feet  
shaded in brown from. Setae short, white, rather stiff. Normal  
Hd June 20 Hd 4.5 lat. bilobed, flat before, dull black  
(see after 1013)











948

Green Noctuid on wild cherry, Platte Canon  
Col. May 23 1901. Hd  $3\pm$  rounded, and lobed  
erect, green, epistoma and bases of antennae  
white. Body robust, 12 not enlarged, 13 taper-  
ing robust, cylindrical. Clear green, a straight  
white d. line 3-13 granular shagreened;  
tubercles small white, skin smooth white  
peppered, cd line narrow, broken, granular,  
white; traces of lat. line; subalp. narrow,  
granular, pale yellow 2-anal fl. Feet pale,  
spiracles white, black mixed finely  
in at lower cross spiracle. Cth green. Anal  
fem slightly extended backward, white lined.  
Venter white d. shade, stig line yellow sd obscure  
Died Sept 15 1901 cat no. 18068 *Xylinia torrida* Gu.

949

Noctuid on wild cherry, Catalpa? Platte Canon May  
Early C. *pygmaea* (May 30) Hd flat before, erect later  
rounded, gray mottled & streaked with a border  
brown band to the disk. Lab face, white edged  
before as top of lobes. Body slender, flattened  
lucidly fringed s-v, a long d. cone at 9 oblique  
directed backward. Feet 9 7 & 8 shortened.  
Head gray, fringed mottled peppered with black in  
a gray ground, a dull fleshy but on lower and  
anterior 9 9 2 tubercles adpressed, erect, ii 9 12 esp.  
long & directed backward, dull dark fls colored  
with whitish tips & minute black hair tubercles.  
The feet crooked, white inwardly, abd. segs  
moderately long with long claspers. A black  
stroke from ii 12 to above spiracle.  
Spun from 7 cat. *ultronia* *celia* (Hd) *pygmaea* 1894  
(Died on *pygmaea* - see spec) *celia* 1897

950

Celia sp

Noctuid eggs on a stiff wood with many jointed leaves  
and mixed hair stalks. Boulder Creek Canon Col. May  
22, 1901. Spheroidal, pale yellow slightly shining;  
about 28 low but rather sharp ribs, increasing in  
intensity to micropyle; cross striae compressed  
pitted reticulate, micropyle area fine reticulate  
D. 7 h. 5 mm. Laid on young tips & leaves.  
Hatched May 25 Hd  $3\pm$  rounded with pointed mouth,  
erect, polished black. Plate feet & tubercles black.  
The latter moderate, rounded, moved for noctuidae.  
Setae short, dark, stiff. Body cylindrical, rather robust  
and stout, joint 12 very slightly enlarged, 13 small the  
ends rather square, not tapering. Died  
Eggs more at same place June 3 1901. Solitary  
sitting on the stem in leaf.  
Hd 2.5  $\frac{1}{2}$  R. Rounded, free but rather small, slightly  
lobed, green, shining, faintly reticulate, cells in  
a white ground black, labium and antennae white.  
Body cylindrical, robust, 12 slightly enlarged. Black  
green fringed mottled dotted with white; a row.  
Scale white along line, white above, greenish white  
in the lower  $\frac{1}{2}$ , 2-anal foot. Feet robust equal  
rather small, pale, darker brownish. D. erect  
slightly darker, 12 below middle 7-9 at middle 10  
 $\frac{1}{2}$  to v on 11. Spiracles white, black edged.  
Hd 1.1 Green; white d & narrow sd line and head  
white stig. Tubercles small white. Feet 7 & smaller  
Hd  $3\pm$  Rounded slightly lobed after a little under  
2. Green as before but faintly reddish dotted  
Body all above but a reddish shade on the  
dorsum except on the wings. The d. & sd lines can  
be faintly traced among the mottlings, but  
they are practically obsolete  
(all dies June 6 in spite of frantic efforts)



964 (cont.)

Egg by ♀ 16911 Golden (near Summit) Col. June 20, 1901  
 Elliptical, rounded, 2 sides flattened, wedge shaped,  
 the base and thorax as a small space, all  
 without sharp angles. Coarsely hexagonally ret-  
 iculate the lines raised. Head, rounded, the  
 space between flat hexagons rather regular.  
 All pale yellow.  $9 \times .6 \times .5$  mm.

Hatched June 23 1st inst. erect, scarcely tilted. Antennae thin  
 with black annular rings.  $4\frac{1}{2}$  mm. Body cylindrical, normal,  
 short, legs not elongated but with rather contracted, all brown.  
 yellowish the feet showing faintly green, not shining. No hairs  
 perceptible. Tubercles a setae abundant black. Legs slightly  
 folded, whitish, feet pale normal, no markings.  
 Setae very faint fine white 2d, lat. line, 10-13 2d shaded  
 with dull reddish.

June 26 1st inst. 7 round, black erect, slightly bilobed,  
 pale pinkish flesh color. Body moderate, rather thick  
 uneven a little depressed, narrow, smooth. Tubercles  
 slightly elevated a little blackish, rather rather long  
 dark. Abdomen green a fine odd whitish line; 2  
 faint subdorsal lines the gray shade broad. Setae  
 and head whitish rather slender shaded. Feet pale  
 sublight yellow, normal.  
 molted in to July 4-5

Another ♀ 17205 laid egg July 4. Hatched July 7.

951

Looper on wild cherry like *Alaciphila pomelaria*  
 Platte Canyon Col. May 1901. 1st inst. 1st green, legs green  
 white hind run a few black markings. One  
 head black hind filling in between 2d white line  
 and black feet stig. patches between the lat. a  
 outside white line. A white shade between 2d  
 and lat., separated from sides by green space.  
 Trace of 1 or line. Feet green, small pairs on 9.  
 Another all green with white lines.

Ant. Oct 20 1901 Cont. no 18076

*Alaciphila pomelaria* Harr

(See life history, Boggs XXVI, Psyche ix 266, 1911)

*Berberis repens* (Cottard)

952

#2 plant = *Berberis* sp.

Queen larvae solitary on back of leaves of low berry  
 like plant, Boulder Creek Canyon, Col. May 22 1901  
 flattened, the dorsal section rounded but irregular  
 strongly tapering at both ends. 1st small elongate  
 held near flat, with head high, 2, rather round a  
 pinkish mottled on the lobes with large pale brown  
 spots a and apical line with ant. a ant. the feet whitish  
 somewhat mottled. ocelli a tip of ant. dark as 1 mm.  
 Body thickest at 5-6, shaded nearly concolorous, not  
 contrasted. Setae gray, dorsal line yellowish brown  
 pale yellow edged, a little irregular a clouded faint  
 cutting out white a pinkish gray edged with near  
 black tubercles; stig. fold obscure, faintly shaded a  
 yellowish a brown. Feet normal pale. Tubercles small  
 black distinct, whitish ringed. iv + v separate, iv a  
 little dorsal. On 3 each approx. separate on 4, iv  
 + ii + iv + v. Setae distinct, brownish. A few white  
 dots lat. - stig. legs obscure, 63 annulate.

Ant. June 7 1901, Cont. 16586-9



953

Butterflies on wild gummy leaved sun flower?  
 Boulder Creek Canyon, May 23, 1901. Head black,  
 epistoma white. Black, white peppered  
 on obscure greenish white dotted d. line  
 with a whitish interseg. quadrate red  
 blotches 2-12. a broad pale s-v band  
 black excepted, yellowish white on coxae.  
 including spiracles. (See figure 953 for the  
 structure (details))

Chas. June 7 Cat 11575 B. carlotta

desc. by M.C.

954 *Strophopneustes* *diffusus* *diffusus* *diffusus*  
 When small, green, no line  
 1-12, iii minute) and v black; iv  
 small distinct dorsal brown i  
 line with v. crossed perianth  
 below the mark reddish. Spin  
 (all black. Hairs white, spreading)

T. larva with 953 eating young heads and webbing  
 from up. black peppered, tapering at the ends  
 feet normal, slender. Hd rounded tubular, apex  
 rounded & minute projecting 1-2.3 mm black outline  
 broadly brown: no 2-3 black, white line diffuse  
 i with 3-4, ii with 1 hair somewhat approximate  
 iii several hairs, a group of 6 hairs on s-v fold  
 without mark and on hair peak in line about in  
 same seg: several hairs for vi

Chrysalis green, a broad band dorsal white s-d  
 line along i-ii with 4 black dots per seg between  
 as a square bearing black blotches post. iii pale  
 spiracles black, skin fine dark granula: est  
 blackish, hairy. Tib. feet black. s-d pale.  
 Hairs white, minute, granular tipped. Segs  
 obscurely 2 annulate. 2 black impressed lat dots  
 in middle of seg. Spins among dead leaves.  
 Chas June 10 1901 Cat no. 16630

955

Webbing up leaves of lupines. Boulder Creek Canyon  
 Col. May 23 1901. Hd rounded, vertex under  
 pale lateral ocelli black. Cth whitish, immaculate  
 body slender, wiggly form, whitish with yellowish  
 brown bands as wide as interspaces, sd lat.  
 sublat., with a faint band s-v. Feet all pale.  
 Tubercle minute, setae fine, sparsely dark. A  
 faint broken, median-ventral dark band. Head  
 fl. small pale. iv & v approximate, v dorsal.  
 Tubercle dark, without tubercle plate.  
 (also a yellow flower bean Golden Col May 29) *Thermonipha*  
 Chas June 26 1901 Cat 17095 *mountana*  
*Ectophasia unistella* Zell

956

Little larva longish, curved from Platte Canyon.  
 All whitish with brown. rounded lower d. tubercle  
 on s-g joint of a faint s-d stripe of same color  
 Hd blackish, pale tubercle. Segs somewhat rounded  
 annulate, smooth. Setae short, black dot top of  
 the tubercle minute. Should not be winged.

*Rubus deliciosus* 957 #3 plant *Cacoxys*  
 webbing up leaves of rose-currant plant, Platte Canyon  
 May 25 1901. Unusual wiggly. Hd slightly broad, feet  
 with long est yet black. a faint brown on face the  
 shield tubercle except dots on sides. Setae  
 cylindrical feet short, segs irregularly 3-annulate.  
 Sordid brownish green, a darker d. s-d line,  
 tubercle round whitish distinct with coarse  
 white setae iv+v. Spines black rigid, the feet  
 black with pale joints and pale. Dorsal joint  
 olivaceous shaded. A gland i 9 an obstruction.  
 Abode. Chas June 5 1901 Cat no 16537 = 944



958

Seems on young rats. Platte Canon May 25, 1903  
 Hd rounded, weakly lobed, pale reddish shaded  
 broadly on sides. W 1.2 mm. Red large for  
 head, cylindrical moderate, thickened 5-9 and  
 these segs swollen centrally, smooth. Tubercles  
 rounded, black, distinct a little elevated with  
 pointed black setae. C-H narrow transverse  
 black, composed of subconspicuous tubercles.  
 Ocellus green, the swollen segs pale red banded  
 mottled, a double d. & lat. greenish white  
 mottled line; a broad white tubular line  
 broken centrally on segs. Venter brownish shaded  
 and red lat on other segs with dark purplish, the  
 color clear in lat. band above iii and shading  
 the dorsal space 10-12. The feet black, abd of 10  
 reddish ventrally, 9 is black lined and 1 feet.

959 *Cerocarpus* (Gould)

Leaf folder on #4 plant, hillside dotting north.  
 Platte Canon Col, May 25 1901; Hd. Shaded to feet a  
 black body and sides whitish. Slender flattened  
 narrow wings. (See note) also Marston Col (Osage)  
 Young 1.2 mm rounded apex under 2 pairs of setae  
 red-brown shaded reddish at mouth, scales black.  
 Body translucent soft green, not shiny; c-h large  
 pale tubercles. Black rounded foot. Tubercles large  
 whitish a little elevated above iv & v & glands  
 large, dark purple feet & setae pale. no marks  
 Oct June 26 1901 cat. 17094

Texas foliaria muls

Doubtless *Xylorhiza* *crucialis* Walk  
 (= *crucialis* 1 form) I desc stage 2.6 & 4.0 78  
 in can ent. 26, 21, 1894. under common 5903  
 960 Marston May 4 1891

Light frosted on wild plum, Platte Canon May 25  
 Hd. 8 rounded black, C-H quadrate, black. Head  
 rather thick, cylindrical, thickened 12 & 13  
 enlarged, very widely whitish, almost gray  
 with narrow white d. & lat line, the latter  
 edging c-h. Faint line along iv and v. Tubercles  
 round, elevated slightly black distinct narrow  
 leg plate & anal pl. black. Feet black; setae  
 dusky short, tubercles ferrug. pale. Mottled.

Hd 1.6 May 30 Shiny black epistoma & bases crad.  
 and white, c-h black, trisected at white narrow  
 Body translucent black pale mottled, d & lat line  
 white distinct, ~~black~~; sh. broad, yellowish, lateral  
 centered, including space & reaching to v, sharp  
 edged. Tubercles black, round elevated, polished  
 the black. Setae rather long, pale. Venter  
 rather small greenish, purplish shaded.

Hd 2.5 June 4 Shiny red brown, epistoma & anal. white  
 a black shade at eye. Body whitish green, rather  
 translucent thickly white dotted. D. & lat line  
 narrow white. Sh. short, edged, greenish filled  
 orange tinted. D. tubercles distinct, small black, iii  
 rather large, with narrow shade about it. Tho.  
 feet black. Enclosure yellowish when folded. Shaded  
 green, concolorous but more white distinct, c-h strong  
 with 3 white line. Setae rather long fine pale.

Shiny June 4 Hd 3.6 Shiny red-brown, pale in center, not  
 reticulate. Translucent, the skin outspread by white  
 dots, yellowish green fine feet. D. & lat line faint  
 nearly resolved into dots. Sh. also faint, present  
 into body, the orange shades about space persisting  
 Tubercles small black, whitish ringed; setae  
 rather long dusky. Enclosure as before but less  
 distinctly marked. (More as common *Sedalia*  
 col)

They *Xylorhiza* *crucialis*



961

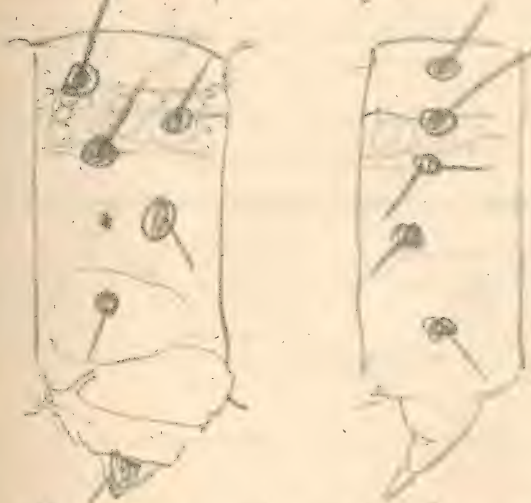
Pyralid webbing blackberry Platte Canon May 25  
 Hd rounded bilobed oblique apex under 2, luteous  
 with black sutures bases antennae, spiracles  
 white. Shield luteous black at lat edges.  
 Body slightly flattened cylindrical pale  
 greenish white subopaque. Tubercles colored  
 small setae pale no number. Thor. feet  
 blackish at tip. iv+v. Spine narrow  
 more curved. May 30 J. Ichneumon Jun 6

962

Pyralid webbing up a head on wild cherry  
 Platte Canon cal, May 25 1901. Supra  
 Hd, shield, anal pl. black. Tubercles shiny black  
 Body ant. white, a little yellowish shaded  
 black tubercles, d. v. narrow, narrowly channeled.  
 Seg. strong 3-annulate. iv+v, anal foot black.  
 May 30 Hd 1.4 ± black as shield tubercles. Body  
 blackish shaded all over, brownish, 2 fl. pale  
 yellowish. Setae long pale.  
 (and June 24 1901 Cat no 17013-8  
Cassida crassiorana Fitch

963

Stage I of Vanessa mulberry on mulberry Platte Canon  
 Cal, May 25 1901



thorax ii + iii h, rest separate.

Hd bilobed shiny black.  
 Body pale yellowish, col  
 tubercles & plate black.  
 a broad narrow purplish  
 sd band. Setae pointed  
 black: primary only.  
 Body thick, in cross di-  
 tring, cylindrical not  
 tapering. iv behind  
 spiracle, v below. Ch  
 thorax ii + iii h, rest separate.

Corymbia XXXXV

[see before 951] 964 (see before 18 1901 Cat 16858)  
 from June 4 between leaves  
 from 952 plant with it (± plant) Hd rounded  
 bilobed free, pale red, yellowish in center. w 1.2 mm  
 body cylindrical, robust, uniform, smooth. black,  
 shield & shade reddish, d. space darkish luteous  
 add. 1 sd. narrow broken, obscure white line -  
 from stig white line. iii - v. greenish. luteous  
 filled, yellow about spiracle, a white line  
 to anal foot. venter brownish dotted.  
 Tubercles small round black. Feet black  
 abd claspers reddish. Setae dark fine  
 obscure not shining. May 30 Hd 2.0 orange  
 shiny body robust ends rather swollen. Purplish  
 black, anal line broken. wing absent; stig white  
 enlarged as egg, a little yellow at spiracle luteous  
 dotted ventrally. Feet, except shield 9 13 reddish  
 Tubercles small black white line on foot 13



*Helianthus pumilus* 965

Found in *Synflora* webbing of head and feet  
running leaf. Like *Helianthus pumilus*. 1st elongate  $\frac{1}{2}$   
much & black, rather dull, & brownish. w1 = mm  
Body rounded, slender, incision distinct, rather  
scattered, all black, the tubercles large, elevated  
rounded, all conspicuously white. Ringed, IV+V  
the 1st-10th, 11-12. Shields black, even, even.  
the feet shining. abd. rounded, normal.

Over June 14 1901 Col no 16757

Copied for Bruch's *Depressaria* paper  
*D. umbraticostella*

966

Large Coleophoridae cases in *Synflora*. Denver Col  
May 28 1901. White of white with brown  
leaf only in line. Length 17 mm. (To Kew)

967

*Catocala* in poplar. H. Collins Col. May 1901  
Not rounded, quadrately lobed, a reddish brown  
at first of light white, black reticulate on  
lucida line under face; mouth brown. W  $3\frac{1}{2}$   
Body flattened feet large 7, 8 smaller, no fringes.  
a low rounded d. hump 9 between 11 & 12 grey, like  
cottonwood bark, white, rather sparse black  
fingers round with feet white & black.  
a brownish streak (black) last incision 9-10 and  
slight oblique streak behind 11 & 12 and 13  
Tubercles round, elevated white, 20-22 which  
is somewhat larger on 12. The feet pale and  
brown lined. Spines black ringed

*allium* sp

968

Egg by 4 *Thymus rosea* Sw. Col 16439 May 29 1901  
Most resting head down on onion flower. Denver Col.  
Hemispherical, base flat, 28  $\pm$  vertical ribs, low, rounded  
diminishing regularly by alternation at upper  $\frac{3}{4}$  and  
ending on micropyle forming a slightly depressed ring.  
Rings again a little elevated, reticulate. Cross striation  
faint but cell-areas slightly hollowed, a row on each  
side, each ridge, the joining is hollow and in center  
of ridges, which appear somewhat raised. Facing white  
D. 8  $\pm$  4 mm

Hatched June 6 Hd rounded bilobed, mouth pointed, shiny  
black; w 3  $\pm$  Cph black excised at joint 8 and a little  
as a d. line post. anal ft. faint dark brown. Body  
normal, white, no marks. Tubercles very small, with  
moderate pointed setae black. The feet blackish ringed  
abd. feet normal, equal, pale. (but inside on leaf)  
One pair! Hd. 6 brownish brown black. Cph a plate dark  
brown. Body as white immaculate the insect tubercles  
dark.

June 10 Hd. 9 Pale yellow luteous, mature, area about  
eyes and joint brown. Body all white, Cph a  
little shiny and a shade yellowish brown posteriorly  
concolorous. Tubercles minute, often moderate dark  
feet normal, spiracles black ringed faint, rather round  
June 27 Hd. 1, 2 with Cph shiny brown. 1st round, bilobed  
compact & smooth, the bilobation post, vertex level  
D. rather high rising to subtriangular triangle, shiny  
dark brown, mature, with 9 lobes post. bilobation.  
Cph long,  $\square$  scarcely notched behind, shiny light  
brown. The feet light brown. Body all of young white  
the tubercles small brown with short stiff black setae  
but with 2 detached setae on lower side next to on  
shield. anal ft. shiny brown with dark tubercles  
spines brown brownish. Feet normal the cocoon  
in a neat half circle on inner side of plant.  
Tubercle is at lower corner of spiracle.

(for Hampden Cas 2nd Phal  
IV.



1009 cont (from after 985) [Step VI] Larva gradually tapered, 13 segments; slender, uniform. Tubercles a little elevated white, black ones, 11 at middle of space. Rudiments of feet on 7-8, then on 9-13 normal, approximated, caudal segs. elongate. July 16 Hol no 3. Larva round full under 1 high than 2 yet vertex not raised in expanded end of 2. m. Antennae a little depressed, 5 massive. white, smooth & little tubercles, on each black dash is D, 3 lower bands of each tube from occiput converging to D, black edged, filled with black & brown dots. Body slender, cylindrical, elongate, feet on 9, 10 & 13 with little rudiments on 7 & 8. Brown gray black 8d 1. Seg bands, strong edges but a little undulate. Black edged, black dotted filled dorsal space brown, black dotted on ash ground; a white space as if before white the ventral 2d band is dotted in black; lat. sp. pale ash brown just dotted in dull red; a pale space as if; subdorsal band like lat. sp. ventral space dotted in blackish, ill defining a 5th band, colored like the subdorsal. Tubercles dark gray, pale. Male dark. 11 at lower edge.

969

Larva common blue lupine, Fort Hills May 29 1901. a broad blotchy area along mid of leaf below upper epidermis, in spots marked brown. In lower zone many cylindrical tubercles pale greenish, feet black tipped. 1st seg feet with band shaded D, pencil, brown around the margins. All feet short on 8-10 and 13. Skin smooth, a little yellow, 8 pencil shading yellow. Tubercles & setae very minute. No tubercles, 2 a little oblique flattened & joining between (See 16731)

970 Argemone mexicana

Opuntia webbing up and injury popping Golden Cole May 29 1901. Fold up leaf and open young stems. Pupae in folded leaf, the end bitten off. No 1, 2 + head flat up to under a strong black epistoma and bases of antennae white. Body slender, flexible, warty style tapering a little on the ends, occasionally flattened. segs strongly annulate, creased in incision. 6th large, black, narrowly inserted & pale; prolegs black, tubercles large, black. 2nd seg strong black, all short normal green, slightly dark shaded; anal plate small black, slightly tuberculate and shining green, dorsal anal narrow dark, or fold light when well folded, no marks. Tubercles rounded, rather small, slightly elevated with black hair tubercles like the plate concolorous with skin. iv + v, ia + ib, ii + iii more above the other. Spiracles black, with pale centers. 3-4 rather long dusky.

Chas June 6 Cal. no. 16565

Platyphorus latissimus Zell

from 1901  
by J. H. P.



971

hemispherical on rose and wild cherry, Golden, col.  
May 29, 1901. Hds 1.1 black and purplish black in  
masses. Spines all long, erect, ① with some  
lower branches 5-9, otherwise all black. Normal  
single d. spine 12-15, and fl. here. Spine 2-4, teeth large  
Hds 2.3 Hgh, tubercles conical, 5 low, between in pairs  
black, shiny, erect, free. Body cylindrical, rounded  
black, purplish with faint trace of white line  
the subventral row distinct but all obscure  
thin 2 pale lines appearing without tubercles.  
Spine ① branched 5-12 normal & its spines long  
yellow, some buff also on the not shorter ④.  
②③ all black, the white dots on body. Same  
sd. lat. as in 946 but a faint color  
And June 5 Hds 3. Black, 2 branched, white  
as before. Some buff spines on all the spine  
esp. dorsally, tips black. No marks.

May 30 1901 Hds 4.5 & 5 same

Material in capsule, July 14

Primarily *Helminthogaster* *shastaensis* the yellow  
and pink from Silletti's head specimen  
at Fort Collins.

972

Wiggle webbing cottonwood, May 30 1901. Hds. c-4  
shiny black. Body translucent pale green, a little  
erect. feet dark green. Tubercles round, small  
whitish slightly elevated, those 3-4 esp on sides  
blackish or black. Thin. feet black, old plant.  
normal. Sep. normally annulate. Setae rather  
long, pale.

973

Wiggle webbing "much flowered around" May 30 1901  
Hds. large shrub, feet of 2 black; other feet pale  
all normal; body translucent, pale green, feet  
dark, excretory tubes & other organs visible. Tubercles  
small, pale, slightly elevated. No marks  
Gustonia white. W 1.3 ±

974

Proctus in oak parkway from Platte Canyon, Dec  
May 30 1901. Hds 3 1/2 mm. rounded, not lobed  
erect green, rather translucent; ① small.

Body cylindrical normal. Proctus 12 a  
brist enlarged locally. Green, whitish on the  
back a white d. line narrow on the con-  
colorous, small as feet. A head row of dots  
4 per seg. and = faintly supracly row. Sub-  
stigmatal line whitish, rather broad, sharp  
edged from 2- foot 13. Tubercles whitish  
and ii large, is at lower corner of space  
7-10, 1/2 d. v in 11. Spines very numerous, dark  
bristled. Feet green, clasper pale.

Reputed but died







*delaminatus* 2 cell  
*Orpithus ferrugineus* Fitch  
977

T larvae on wild grape Platte Canon Col, June 1, 1901  
all matured & to J. Hd rounded, whitish; body light  
green, a rather broad, white, 3rd stripe. Venter  
a narrow creamy patch on 6 and 7. Feet normal  
shaded. Tubercles i and ii united, single band  
i long and, ii post; iii single band leaving joint  
iv and v united, most strongly oblique; vi  
single, backward; vii 3-banded on leg base  
are stronger than the others. Vis & hairs  
the stem finely granular. On tho: i+ii  
ii+iii, iii+iv+v, vi double. The shield but  
6 setae in 2 rows, 3 on pre-spiracle, 2 on 2v. vent.  
Cult June 11. Cat no 16652

More larvae on cottonwood, all matured, white, brown  
July 15-1901 3 ind. <sup>must be *Sarothamnia* *coquilletti* Hark</sup>  
On Big Horn, Platte Canon Col, June 1, 1901. These are  
smaller, pale like tips. Young leaf just out with  
shaded leaves underneath. Pale yellowish green, a  
light top, 2 or 3 sided, leaf at tip of stalk at  
side by pressure of leaves. Tip of stem nearly the top  
is recurved. Larva within, pass in the tip of leaf.  
Body flattened. Every leaf that touches the inside  
of the cavity is covered in that part of its surface  
Hd rounded elongate, vertex round & 50 high, front & vertex  
ocelli black, joint brown; w. 8 mm. Body subcylindrical  
flattened, maximum depth, segs. faintly 3-angled  
the reduced, the first pair much larger, and 1st  
large, shining. Very abundant white tubercles, most  
shiny but mostly covered, i slightly toward ii,  
iv+v; ia bit more apical, ii a bit curved, iv+v.  
On abo iv+v the upper and are small. Feet normal  
short the crochets & a small complete with, all  
pale. Setae moderate pale. (all magenta black but @ 17  
To check) seems to be all chocolate brown. Hd. feet  
strong and all are said to be white but to be a little brown.

979

Wiggler on cotton-wood-willows Denver Col, May 31, 1901  
Solitary, webbing up leaves. Hd. shield shiny  
black. Body rounded, vivid greenish, dorsal can  
colours, a little elevated iv+v. Feet normal. Spin  
acles small. Mark. no marks  
Small Hds pale bottom brown a black line a side  
ocelli black. joint brown. Body green, shield all green  
translucent, tubercles pale, a little elevated, normal.  
all like wiggler no marks.  
Cult June 18 1901 Cat no. 16859 *Cacoecia caryocarpae*

980

Wiggler on ash. Denver Col, May 31, 1901. Spring  
up the leaves, solitary. Young Hd. shield shiny  
black, all like 979. Joint 1.5 mm greenish  
translucent. black below at mouth but a little  
pale. On translucent ground between shading  
to brown black at the edge. Body translucent  
vivid green, slightly oblique, d, tubercles small  
pale, elevated, rather large, segs. convex  
translucent d. making look lumpy, & glands  
faint yellow. Setae long pale tubercles normal  
ia+ib, ii+iii, iv+v. No anal gl. just a  
thin, feet blackish rounded, last pair prominent  
Cult June 17 1901 Cat 16802 *Cacoecia caryocarpae*!

Selecting for 981

July 13 cat 17184 <sup>to be 981</sup> Same kind to J. June 1, 1901  
Leaf folder on cottonwood Denver May 31. Fold up leaf  
matted all around margin like a box or bag; solitary  
ia, it apical, ii+iii, iv+v the last *Sarothamnia* like  
larva, all of a soft green, in various shades  
dorsal green, & pseudo whitish. Small shield like  
body, more shiny, more bottom tinted. Hd whitish  
translucent. darker in centre & vertex, ocelli black.  
Feet normal pale, 73 d. dark prominent. The  
is smaller than rest. segs subcylindrical



912

Noctuid in a bag of 997 Sierra Col. May 31, 1901  
 Shed June 3 Very strongly marked, nervous if exposed.  
 Body light green, translucent densely minutely  
 clear granular. A white d. stripe and a narrow  
 broken sd one; subdip. line white narrow, ad  
 2-foot, but the green shield w/ faintly white  
 lined. It is white, the rest green, obscure;  
 spiracles fleshy, dark rounded. Hd broad, slightly  
 lobed, flat before, white, a broad black  
 band on the angle each side, irregular edged,  
 meeting ventrally except for suture. Chestone  
 surrounded by brown. W 3  $\pm$  clasper whitish.  
 Out Aug 10 1901 cat, 17338

*Spinnophila pleonectus* Lk

913

Big green wiggler in plum. Hd brown-brown, spiracles  
 white, apex white. Body all green, fat, slightly  
 shining no warts. On large green, narrow  
 black surround at sides and behind continuous  
 Tubercles small, slightly elevated, areolate in shape  
 the feet pale and the dark brown.  
 Out June 14 1901 Cat 16756

984 (see 1024)

Noctuid on oak. Platte Canyon, Col. June 1, 1901  
 Hd 2.8 mm rounded bilobed, apex white & brown  
 bearing reticulated with black esp in a long  
 transverse patch on eye. Epistoma & basal  
 antennal joint was white. Body elongated  
 13 tapering, cylindrical; feet short, pale.

Brown shaded. Gray & black. Top white, narrow  
 in increasing, a broken mottled d. line and a  
 distinct sd one irregular about i, composed of black  
 mottling on gray. Filled between with red setting  
 on white. A broad pale lat. sp. like dorsal  
 filling, narrowing centered with black dots  
 to black top line like sd, dilated centrally.  
 Subdip. band again pale like d filling, the sd area  
 dark, not not as dark as dorsal marks.  
 i-iv obscure, iv at upper & spiracle; v & vi large  
 black. Leg shields whitish; spiracles black setae  
 rather long & pale.

Shed June 11 Hd 3.7 mm Same, the sd and lat  
 black bands from post 12-13 making anal pale  
 all black, warts disappeared. On 11 a little  
 white dust at 2 and before spiracles.  
 Out Mar 20 1902 Cat no 18089

*Synchlora valens* Dyar



Ceanothus  
gondleriDellinger  
quadranja

XXXIV

983- (See IV after 975)

Egg by 4 Looper 16488 May 30 - June 1901. Elongate elliptical, ten large set strongly, a little oblique. Minute, the other flattened depressed, truncate and convex in center. Retraculation linear narrow slightly raised arranged in straight rows the largest of the egg is very slightly spiralled, alternated so that the parallel line are crossed; pit at the edge of truncate the rest become small short ridges. Truncate end smooth, obscurely reticulate light blue green.  $9 \times .55 \times .4$  mm.

Hatched June 8 1st. rounded reddish brown the pointed brown brown, slightly bilobed, feet small. Body moderate, robust, unispin, smooth. whitish a rather broad purple line d. stripe markedly deeper at ends and a minute sv one 2-13 narrowly defined at the ends segmentally submaculate in darker. Feet white, robust. Tubercles, setae, obsolete. (Failed to eat). Second lot 9 16543 hatched June 14

(6 scale, refusing food) Third lot 9 16905 hatched June 27

(Ceanothus spiny plant)

First lot 20 1st rounded bilobed with small dim. shaped 3 feet white, whitish, bilobed marked a purple gray line leaving a pale line dark on each side. Body slender, slightly robust. Setae long, whitish, sparse, d. stripe broad, purple brown. rounded at ends. sv seg. thick connected by a subobsolete line. Later d. stripe is grayish black, dotted, rounded with small line, very maculate. Setae just gray very obscurely lined. faint later dorsum. Later d. stripe pale to obscure line, a slight black a few dots. sv spots narrow, separate.

Second lot 100.8 rounded bilobed dark. Plentiful large. gray whitish flecked with black, brownish bilobed and each side on. Dorsum in the broadest marked with black. Dorsum to tubercles dark gray with a darker greenish d. and single lat. line (1-11). Side whitish with 3 fine dark lines the lower a iii. a broader, but narrow, whitish shy. Space. Setae minute a slender like side with a row of fine dark setae irregular line one a row of round small black or seg. patches. Tubercles, dark dotted. Head not lined by the seg. patches. Tubercles a faint black spots. Later more irregular hairy line a slight line a dorsal sv pale spot

1009 cont slender, feet a 9.10 (approximate) 1/3, with thin spots a 7.8. 2. Space greenish white, slightly thickened with base of d. add line. sd, lat. a broad frequently brown line a whitish ground, suberly broad bilobed and a row brown bands. Setae short dark, rather long from very small black tubercles. The feet black and thin lined. 12 very little hairiness.

Third lot 100.10 white with 3 greenish lines on each side 11.5 mm of long the upper one abbreviated. Key slender as before, whitish sd line double fine brown purple black, upper part narrow, waves; 3 fine line above the white suberly line. 3 faint chevroned, irregular brown sv line, reddish and a dotted ventral line. Setae distinct dark but tubercles obscure (See as in 986)

Fourth lot 100.13 white 3 greenish purple bands 11.5 mm. Mark of line to d. jointed at lower end, a dark mark on epistoma to apex d, center narrow dark line, full above, slightly bilobed, longer than 2 but the apex a little curved, d. line, rather pointed at mouth. Setae dark. Body uniform slender, feet 9.7-8 very small undivided. 9-10 distinct approximate 13 stretched feet. Gray whitish, trace of a dark d. line; sd double, the upper waves, lower crossing i-ii, lower part 3-4. a faint single lat, suberly double like sd but lat straight, upper on iii lower on iv; shy band slightly more white than ground; 3 sv line a little curved and irregular esp. the central one - ventral gray white a half shade lighter than dorsum. Feet pale brown marked. Setae slightly widely undulating esp. feet. Tubercles black, small, setae black distinct feet. (See after 966)

Fifth lot 100.15 same. Sixth lot 100.23 rounded scant bilobed oblique, large at vertex, higher & wider than 2 but apex retracted. whitish. 3 greenish gray-brown dotted filled bands on each side a dark mark a d. Body gray, dotted marked. Dorsum brown dotted filled. Space 3 pale from the broad black dotted narrow sd, side very pale dotted filled pale space; greenish narrow black suberly dotted filled. Setae white, shorter by the feet, reddish filled. Below a greenish space dotted filled and dark line, single sv with pale ventral space dotted



986

Egg by G. G. G. 16446 June 1 1901. D. 1.5 mm. Col. nearly spherical, a little flattened on the base very slightly conical. Smooth, shiny dull yellow with a greenish olivaceous tinge. No setae or ribs. The surface covered with slight shallow depressions, the edges ill defined. D. 8 very distinct July 10 and also the woolly noctuid plant. 1. Egg slender, somewhat thickening toward before hatching. Hd rounded, oblique, button, dipping from rounded, scarcely lobed, 5 high, cells small black. Body cylindrical, slender uniform, feet red. n 9, 10 & 13 rather long & well developed. White green from feet, a faint band dorsal. D. 1.5 mm. Head. Tubercles very small black, obscure. Cph brownish, not conical. Feet except anal black. Gata the lat. shade broken into 3 dotted line. 2d lat. supraclypeal, there is a white subclavate line. 3d faint brown line subventrally. 4th white. July 15 Hd 1.6 rounded, oblique, apex under 2, feet 1 smooth, sutures not depressed, 4 small, whitish 3 dotted brown bands on each lobe & a faint brown stroke dorsally & on epinotum. Body slender, long feet n 9, 10, 13 same as 9 smaller & approximate to 14. a pair of minute stalks n 7 & 8. Head white, a button shaded, divided into 2y dashes, smaller central. 2d lat. from dipping, black dotted 1 & 2; also lat. supraclypeal & a sv from line, not very sharply defined. The feet black, abd. no dorsals. Tubercles round dark brown. Setae short stiff pointed black. Central segs. drawn out, end more contracted. July 19 Hd 1.0 same. the 3 dotted bands greenish yellowish white filled; erect brown marks in epinotum - 1 and 2 top of body slender. D line greenish white, sides epinotum black dotted edged. center of a dotted brown black line, broken in incision, indented seg. central

Space to narrow from sd line (i-ii) gray; single lat. double gray filled supraclypeal; mostly (between iv & v) white; a double sv, and single, somewhat shaded sv. from line. The feet black, abd. brown lined. July 6 Hds 1.3-1.4 (new lot from G) 1st white shaped as in 1009. the 3 punctate dotted irregular bands a each lobe reddish brown. Erect marks & D. Body slender as in 1009. whitish, prolegs limited. 2. line single reddish. 3d punctate purplish brown dotted irregular waved, dark gray shaded seg. behind ii. 2 lat. a stig. dark dotted lines. 3 fainter sv, having subclavate band a little pale than legs color. Tubercles in black spots, setae black. July 10 Hd 2.0 large feet above longer & wider than 2 like a short button, slightly oblique apex subretroverted. White 3 dotted punctate black bands on each lobe more curved before & erect marks & D blackish. Head white. 1. line single reddish indented on 2 and, 3d dark dotted filled in on line, gray shaded behind ii. Lat. single, supraclypeal double, also dotted filled, whitish than head, 3 & 4 fainter dotted. Lat sv 1009 like brown. Feet brown dotted. Head shape as before. July 16 Hd 2.3 the same but the line more dotted filled. also the space filled in more reddish dots.

*Synedra lachrymans* Dy. Colw







992

*Arachnis gurni* Cat. no. 16146 on #1 plant  
 egg laid on flower in May, larvae eat leaves  
 and later the large inflated pods which lie  
 on the ground. Normal shape, soft pale green  
 with faint pale marks on sd and sv ridge  
 a narrow d line and oblique marks laterally  
 all at first, the colors weak and pale.  
 On all deep carmine red, slender marked.  
 2<sup>nd</sup> have numerous, short, brownish. Not found seen.  
 Last June 20 1901 Thecla antherina!

D. posticella

*Spodoptera tenuifolia* 993 Copied for Ancker's Depressaria  
 Timid? minding 2 leaflets of 3-5 fringed leaflets?  
 with a case of pupation within. Denver col.  
 (See June 4) 1st rounded lobes with large shield,  
 and 1st & 2nd feet black. Body dark aspid  
 shining green, the tubercles dorsal black  
 white ringed, 2 pale in front. iv & v in line  
 approximate, separated but in a common white  
 are, iv largest. On 3-4 ia, it and ia+b in a  
 common white area, a and b well separated.  
 iv & v. Setae brownish. Anal foot plate black.  
 1st. faintly dilated testaceous on face of lobes.  
 Last June 1901 cat. no. 16930

994 = 970

*Spodoptera* on 950 plant, Boulder Col. June 3. web very  
 set to stem & base beneath. A considerable web  
 web. Wiggles, 1st black, spinose and ant. white  
 Shad spots. Anterior, darker edged, large. Body light  
 yellowish dorsum & small darker. Tubercles  
 intercal 2 near black. 3 & 4 dusky, rest slightly  
 darker than skin. Setae. Thor. & anal feet  
 dusky shaded. In large one osh spot near black.  
 Tubercle pale in the dark viridaceous skin. 3-sealed  
 normal. Recovers 970. Cat June 6 Cat 16566

995

Egg of *Arachnis gurni* from Mr. T. D. A. Schaefer, Los  
 Vegas, N. M. recd June 8, 1901. Larva conical, apex  
 flattened, shining pale gray. Rts. small, narrow  
 irregularly hexagonal, obscurely smaller toward vertex.  
 D. 9 mm.

1010 Cont after eating minute fruit, proctos all green.  
 This June 17 1st 5 mm erect free, joint between head  
 and eye black, mouth strong, body rounded moderate  
 smooth, green with a sd lat. pulverulent, sub-  
 geminate blackish marks and a single supracly line.  
 5-fold pale. Tubercles elongate conical, setae short  
 dark, capitate. Shields indifferently. The feet  
 faint reddish, abd. green. Sv and ventral line non  
 dotted & broken. geminate, blackish.  
 This June 22 1st 9 mm erect, brown, feet before, venters  
 slightly under 2 pale green, faint brown streak on  
 the side above black cells. Body robust moderate  
 uniform incanous and depressed, legs more elongate  
 whitish green, opaque, abd. 5-fold. Lat. geminate crowded  
 blackish lines, darker green filled, uniform over  
 but replaced by yellowish green in anal sd, a single  
 supracly line. Sv & v yellowish green with 25 & 4 &  
 single greenish black lines. Tubercles black granular  
 setae short, feet pale the abd. very faint lined.  
 This June 24 1st 1.3 mm (round) erect free, as leaf green, &  
 rather high. Cells black. Body rather short, as before.  
 Green with the narrow blackish, double pale filled  
 line in before but both densely, ventrally proctos  
 alike. Sv fold whitish. Feet green, the anal with 2  
 shields like anal plates, no cth. Tubercles small,  
 conical with short pointed black setae. Five  
 one abd, sd, lat (only 1st - sv fold, not dark edges) Sv  
 and abd all geminate, pale, almost white filled. Lateral  
 white pale & line dark whitish with dark green edges. Sv  
 fold white; dorsal in series folded yellowish whitish.  
 A short robust larva, uniform, segments more elongate.  
 (With eating for several days then found in water. Curled, and  
 very green inside)



996

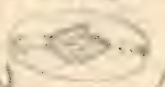
Egg by G. Code 16524 Blatte Canyon Col. June 1-4 1901  
 Elliptical .8 x .5. Flat back rather thick & anchored,  
 translucent slightly yellowish, reticulate obscure.  
 Hatched June 11 Regular little Y. looks like ant. young  
 shortened just. esp. a 11, not strongly alternating  
 yet perceptibly so. Sutures translucent the ridges  
 whitish. Skin smooth, all normal. Hd. yellow  
 eyes black, mouth brown, no markings.

First June 18 Mound, tail quadrate, elliptical, narrow behind,  
 deep brown large & deep, all round. ridges & latched ridges  
 almost papillate granular esp. around margin. Sides  
 distinct about dark pointed normal. All finely white  
 latched ridges of A. Space 1 granule wide.

Second June 23 Elliptical pale, yellow sd line reaching  
 middle just then ant. & round not spot crossing the  
 sd line but yellow edged in 7-8 pale ceruleous.

Third June 28 Roughish not spot rounded, a little large  
 than before. yellow sd line not to ends. Subventral deep.

Fourth July 3 Patch covers 5 of (1) and to middle of side  
 a red dash on 3. Yellow line reaching to 13 with not ant.

Fifth July 8  Patch decreased shape, very edged  
 dots to head. Triangular, faintly shaded to feet  
 between yellow bands. Purple on sides to middle of 13

Sides complete 3-13. Proches middle (4) 7 and 8  
 with little points toward (4) 6 and 9. Yellow like  
 fully rounded "new"

not so beyond middle (4)  
 dark purple lower with  
 of the pale middle square  
 shining in leaf July 14



Side prolegs did  
 all very uniform  
 hardly a trace

XXVIII

997

Egg by G. Cooper 16530 Rueda Col. June 4 1901

Elliptical disk-like flattened concave above &  
 below with sharp edges one end a little more  
 rounded pointed than the other margin, neither  
 perceptibly truncate or depressed. Smooth  
 granular green, shining with small veins and  
 obscure reticulation .8 x .6 x .35 mm

Hatched June 11 (ate wild cherry & junberry) Hd. rounded bi-  
 lobed, not shining yellowish ochraceous; w. 3 ± ocelli  
 black, narrow brown. Rostr. with a sd point on 2 and  
 the seg. slightly widened. Else smooth, cylindrical  
 moderately elongate, round. Segs faintly dorsal-ventral  
 the incision not depressed. A slight rounded dip-  
 elevation, most visible on 5 and 6 and 10. Greenish white  
 a diffuse red-brown d. line narrowed to base of ant. &  
 the neck. Tubercles & setae very small and obscure the  
 latter very short, black with enlarged tips. Skin minutely  
 shagreened granular (also like poplar; refused some berries)

Third June 18 Hd. bilobed, the lobes produced into vertical  
 conical horns, flat before, yellowish, granular, ocelli black.  
 Rostr. cylindrical uniform segs not incised, first granular  
 a slightly elevated sd line. Feet normal the 1st  
 with large granular plates yellowish white lined with  
 brown the granular & sd line white. The anal plate  
 pale edged. Conic horn on 2 conical, granular. This  
 flat appressed, no marks, no setae & tubercles and  
 gl. pointed behind.

Third June 23 Hd. 9 strongly conical bilobed, oblique forward  
 pale greenish yellow, granular. Rostr. as before the  
 1st a 2 smaller than head lobes but similar  
 Rostr. granular the horn sd whitish raised hair  
 longest up a little and on segs. Pale whitish yellow  
 with a diffuse brown dorsal band obsolete at the ends  
 anal pl. pointed, anal setae black with large plate  
 Second June 26 Hd. 1.0 Hd. granular roughened the lobes  
 produced into conic horn granular yellow upper horn  
 a blackish mark on outer side of lobes. Rostr. as  
 before but yellowish green with a faint and



diffuse brown d. line, dusky at end. 2d round  
 line a before white. obscure. Skin dorsal pale  
 granular. The long pointed anal shield extends  
 to rather high and by shield. A dark brown  
 band on v. 12. The feet faintly reddish shaded  
 Red July 2 1st 14 mm granular the high each pointed lobes  
 perfectly  $\frac{1}{2}$  as far as  $\frac{1}{2}$  length of head, which for a few  
 sets a high brown shaded patch a few blackish dots.  
 anal shield free, angulate at joint also hind  
 the comes in a smaller & somewhat than head like  
 but resembling them brown shaded. Dorsal slightly  
 yellowish below the obscure oblique raised red  
 line of granular with red brown diffuse at line.  
 anal sp. produced into a cone behind, brownish at  
 side. The feet brownish, appressed and touching  
 head as near the whole looking like one piece  
 a faint pale sky shade. A dark red brown mark  
 on 12-13 all feet brown shaded. All fine feet  
 granular. Throats reddish. No perceptible tubercle  
 on July 15 a few strands between leaves.  
 Oct Apr 30 1906 Cat no. 18100

# 998 Boralea tenuifolia

Collophorid legs on 3-5 leaved lupine. Golden Col  
 June 5 1901. uniform, 13 mm long. Shiny green  
 tapering foot. Head ant. of white web covered  
 with granules of dirt (to smooth)  
 Similan 998A from Glen and Col (Candler) all brown  
 plant?? Oct Sept 24 1901 Cat 18066

999

With 981 were two when to J. Shuster, Tattered like  
 rather than Sarcophaga like. With dusky dots  
 and leaving a distinct pale s.d. line. 1st round  
 within all about 0, the joint and base of lobes  
 more or less black shaded. Subventral flattened  
 tubercle minute, setae moderate white 1st + 2  
 feet normal short. Hd. setae long. White.  
 Oct June 1901 Cat 17085 *Belachia versutella* Zell

# 1000 Chrysothamnus sp

Papilio-like host on a short-branched, linear-leaved  
 composite. Golden Col June 5 1901. Second stage  
 all alike. Hd 3.2 (5th) rounded lobed crest free, white  
 anterior of s, a band from from anterior to white s joint  
 & dorsal, to another band across back of lobes & body  
 blade. Body greenish white with diffuse clouded  
 d. sd (joint) and obq. yellow bands, curiously  
 black banded. 3 irregular traces. Bands per seg.  
 One across i & ii midline then joined by an ant. central  
 line has rounded furcate lat; an irregular dorsal  
 and band and a broken post one, enclosed in  
 a sd spot. Irregular black marks on and  
 on feet vi in a white space. Feet normal  
 equal. The feet wooden. 1st at base of  
 of spicula or below. In some the black is  
 joined in a s.d. line. Red Hd 3.2 Same (autumn)  
 Oct July 5 1901 Cat 17229 *Amelia latipes* List









1006

Egg by ♀ Cooper 16583 Clattle Canyon June 8 1911. Yolk  
large, nothing. Elliptical with very traces of an oval  
flattening at end and truncation. Smooth, mottled  
like hen's egg though more evenly alike at the end.  
Ret. almost represented and by the angle faces which  
are arranged in fine hexagonal pattern and  
look like light dots in the shadows, pale in  
the light. All pale yellow length 9, w. .55 mm  
Turned bright red next day in tin. Late black.

Collected June 11 H. rounded and free early brown black,  
the D. a little set each side a epistoma white. 45  
Red, translucent, mottled with mottled wing-like  
elevations lat a 5-9 Purple black with 5 dotted  
transverse ridges, white bands on 5-9 ant, cut  
by narrow dark lat line of ground color. A few white  
dots on 13 ant. Bands narrow & translucent ventrally  
the dark.

June 12 H. 6 min brown, a bright white spot a D, a  
a dark side, one on base ant. base of labrum and a  
small granule on base of lab. Body robust, a  
little inflated centrally, a broad granular body is  
not distinct on 4 & 6. Ground reddish brown mottled &  
small longitudinal line in darker, with streaks  
of pale shading. 2 oblique white spots on 2 and a sep  
one before the dark brown spot on 10 elongate &  
shaded triangular. The ventral streak, bifurcated into  
many white irregularly. Tubercles: setae obscure  
June 15 H. 1.1 rounded somewhat, head, late full  
at vertex, flat before crest. white, mainly black  
mottled on sides, leaving a white space on vertex  
and near D. anterior dark. Epistoma brown. Red round  
roster thick, base of 1st slightly convex elevated.  
Pupae brown, iv and vii dark velvety brown. Add. 1st  
lat. subdorsal & 5th narrow faint dotted white line  
2 oblique placed round slightly elevated white spots on  
ant. on 5-7, one on 8. Lat and white patch on 4  
subdorsal elevated spots between black 11 and front  
edge of seg 5-8. A dorsal elevated mottled  
brown on 12, sides of 13 white. Tail pale this 34

and also esp 13 black mottled. Tubercles: setae small  
black. Venter densely oblique dark streaks forming a  
broad lattice with a diamond shape.

June 29 H. 1.8 rounded, disk-like, flat before, a  
broad margin all around flattened & shallowly notched  
at vertex. Face mottled with large subtransverse white  
spots separated by black dots with an irregular  
black rim; sides: vertex part of brown mottling on  
a whitish ground. Body mainly cylindrical, smooth, the  
dark spot on 10 scarcely elevated. Now, the spots on  
10 dark brown on 5-10 venter lighter with irregular  
dotted mottling a diamond pattern. Dorsum yellow  
lined & mottled with blackish on a greenish ground,  
the light white dots 2nd and 2 above (a streak  
below seg, both ant. conspicuous on 6. Small & faint  
shaded in the other seg. Tubercles in black spot,  
setae very short. Pale brown. Ground between gray  
area about the dark; light brown looking translucent.  
June 4 H. 2.7 mm rounded, somewhat flat before  
thick, slightly bilobed, white, mottled with gray  
lutions white on face, black dorsal, dotted the back  
edge defined to apex of 13, covering apex of 14 and 15  
epistoma greenish. Red round, thick, equal and  
cylindrical, a cylindrical papilla bearing ii on 12 above  
then as long as thick, 14 12 elevated white anal  
pl. large rounded D, and just plate elongate D.  
Thin feet moderate pale. 5th feet curved distinct.  
Antennae round brown, the dorsum darkened a large  
seg. diamond edge by lat. round black mottling  
that with 2d seg in interseg, 1 defined to iii seg.  
Ground absent 10-13. Thorax darker brown, obscure.  
2 rounded oblique placed white spot (small) on 6  
and white dots below ii throughout; white dots below  
4 and on 6, obscure dark before apical. A slight  
trans. ridge on 12 bearing the papilla (ii) black seg  
white behind. 5th ridge slightly pale. Venter mottled  
like dorsum with a black mottled lattice on a  
brownish ground but less distinct. 1 black mottled  
lattice in the pale brown areas. (Inflated July 7)  
June 29 Cnidropia solden col. July 6



1007

Noctuid on the gray arctostaphylos plant, Platte Canon  
Col. June 7 1901. Hd 1.6 ± green speckled  
with the black tubercles. Body rounded, 12  
slightly enlarged, 13 small. Dark green, d w  
sd line fine white distinct. Stig. rather  
narrow sharp, white shading to yellow at the  
incisions. Rest white black dotted. Tubercles  
orange black white edged. Feet equal with  
dorsal convolutions. June 11 Hd 2.2 Same. Dorsal  
line darker green edged. Stig. all white yellow  
luteous faintly filled. June 17 Hd 3 mm  
Hd whitish green finely dotted, eye is white patch  
rest not visible. Under 2. Cephalic round 12  
slightly enlarged, whitish green minutely dotted  
gray beaded, d p d line brown obscure whitish fine  
black edged. Stig. white moderate sharp,  
slightly green & yellow centered. Feet 1 shaded all  
convolutions. iv above middle 8-10. Tubercles white  
black. Setae fine pale (Dead June 23)

Noctuid on weed? Golden (Summit) Col., June  
6, 1901. Hd pale dusky reticulate in brown  
black joining a curved band each side. Body  
rounded, aperted, brown gray with black at  
d line and sd. Curved brown black dashes  
brown pale feet color black beaded. 3 line  
nearly white, linear, distinct, broken narrowing  
in incisions cutting off. Sd oblique rounded  
dashed, most distinct just to 12, sharply absent  
on 13. edged below by small pubescent white  
sd. Abdomen broad full stig sharp edged band  
mottled in convolutions, its white edge showing  
sv region convoluted, feet pale. Shaded not  
convoluted. iv at middle.

Out July 13 Cat 17421

1009 *Lynx howlandii* St

Egg by ♀ Noctuid 16586 laid about June 9 1901  
Spherical, base slightly flattened, all slightly shining  
yellowish white subtranslucent. Coarsely pitted, the pits  
in vertical line becoming less by convergence, rounded  
subangular well depressed, then splashed below the  
band and the rounded to look like nets. No ribs,  
the cross ridges as distinct as the vertical ones and  
like them, irregularly spaced. D. 9 mm.  
(Dented - seen infertile) Hatched June 16 (late hatched way)  
Hd 3 ± rounded, oblique pale brownish with black mottled  
& brown line from its head. Body much whitish the  
first pair, a brown suffused lat. band below iii and iv  
in dorsal composed of 3 lines. Elongate, slender, feet on 9  
10, 15, those of 9 & 10 approx. 10. Tubercles more black  
setae pointed. Cth. convoluted with head. The feet  
brownish, abd. ones with dusky spots. Mantles all  
faint after eating, looks dark reddish green.  
The fifth 20 Hd .6 Rounded oblique looks bulging, whitish with  
5 black bands in each lobe the upper oblique divided  
the lower behind the black cells narrow. Body 985

XXX

1010 (See after 995)

Egg by ♀ 16542. Golden (Summit) Col. June 9 1901  
Spherical. Elliptical strongly flattened-concave, one end  
nearly truncate the other slightly depressed. Shiny  
pinkish gray, slightly iridescent. Ribs. Strong sharp,  
regularly hexagonal, resembling honey comb at  
the truncate end, arranged in nearly regular long.  
individual rows for  $\frac{2}{3}$  the length, confused with  
normal nets. at the depressed  $\frac{1}{3}$ . Ribs rather deep,  
well marked.  $\frac{2}{3}$  D. 1.5 height about .3 mm.  
Hatched June 12 Hd rounded and pale yellowish the  
dorsal joining and narrow brown white black. Body  
normal. Short and thick, yellowish not distinct green  
tint and fine brown (single brown line white  
as wide as space. d. (dorsal on cth) sd lat. abd.  
and fainter sv ones. Shaded all convoluted. Tubercles  
brown, setae short sharp black enlarged at tips. Feet  
normal, pale. Shaded faintly lined. (late hatching stage)







1014

Splashing a grape & little Canon Col. Danapa, green,  
2 ventral white line on 1st. 5th line 2- horn  
dark green edged above pinkish on 12. 1st oblique  
5-12, trace on 13, 1 per say rising just. 1st - submargin  
Spinal black rounded, horn green, 1st pale.  
Oct Apr 30 1902 cat no. 18099.

1015

Eggs by 2 *Leucania* 16753 Denver Col June 16 1901.  
Spheroidal, distinct flattened above & below, about  
white somewhat irregular from pressure as laid  
in a row, joined to both sides but weakly. Shiny  
pale yellow. Pits fine, brown - smooth surface  
irregular 4-6 sided; no trace of ribs. Flattened out  
underneath, somewhat flattened rounded. D. .6 mm  
Hatched June 23 (at 100) cylindrical 12 enlarged, 4-6 enlarged  
all around, somewhat but not 1st and 2nd  
smaller than the others; caudal slightly 3-4 annulate  
edge on dorsum. 1st round button, cells long black.  
Body whitish translucent, 1st small brownish, 1st  
jointed yellowish, no marks. Tubular, 1st oblique  
and 2nd visible. The first brownish at tip. No leg shield  
on 1st. Pates pale, short. (all polygonum)  
June 25 1st 5 rounded, sloping to both ends, anterior end  
large, translucent, posterior dark a ventral from ventral  
cells black, smooth brown. Body cylindrical with larger  
behind thorax and at 12 dull gray green d., white v  
with narrow white d. 1st, 1st line, the dorsal line  
d. & v. color sharp. No shield, lateral small 1st joint.  
1st pale normal. Prolegs equal.  
June 30 1st 8 rounded, brown apex 2 dull button the  
1st & 2nd black & 1st oblique. Body small  
buttoned but subequal, 1st very enlarged.  
Jointed straight in brown & olivaceous yellowish. Horn pale  
olivaceous. D. line whitish, horn edge; 1st line whitish  
horn edge very distinct as below; below the 1st a yellow  
white line. 1st yellowish white horn edge; 1st white  
horn edge, brown above. 3rd horn whitish to brown  
1st white pale, 1st small rounded no shield

Third July 2. Hd 1.4 held flat, but free from 2, button,  
horn petiolate. Body straight in olivaceous yellow  
and horn brownish d., ad. d. horn subequal to horn  
jointed lat, olivaceous jointed; horn dark brown lat. and  
supra-stig; substy band, pale yellow, red-jointed. 1st  
below the 1st joint. 2nd weak 1st and joint line ventral  
& dark line. Feet pale darker shaded equal.  
July 9 Hd 2.0 same red brownish in c line each side  
1st a small of lobes. Horn as before but the lat.  
is not decolorous jointed. All horn red horn except the  
horn horn lat. supra-stig which are olivaceous brown.  
July 18 Hd 3.2 The same (see above)

### *Leucania farcta* St.

Hd rounded, somewhat flattened, small free, testaceous shiny  
reticulate with dark brown, a narrow shaded band  
edging parastigma, diverging again at vertex; a less  
distinct darker line just from eye; d. & v. on vertex  
small pale, tubular brown. Body cylindrical, round  
and tapering, no enlargement; joint normal, equal.  
Testaceous, first stigmata broad in red brown. 1st line  
narrow pale; a faint slender line between 1st & 2nd  
1st broad, gray brown stigmata, pale edged above  
& below, most distinct below, oblique, space  
below red. horn stigmata. Last 1st stigmata broad,  
gray brown stigmata, subequal to subequal and by  
narrow pale edging, the last also edged and a  
pale the edge below, the edge being the upper  
back of substy band which is broad stigmata  
red. horn stigmata filled except at a pale  
edge. Venter marked stigmata. Shields undeveloped  
conspicuous. Tubular small, black, 1st upper &  
spinal black. The horn pale, horn tipped black  
7-10 with olivaceous black shields elevated  
above. anal setaceous hind

The moth approaches close to *pinacola* but a  
multiline mark, but I have larvae of variation to  
compare. Horn phragmatid-like the color of light  
thorax from testaceous rather than pale horn  
underneath.



Does not agree with Schenck's etc.  
larvae of *Ecturus scutellarellus* at all!

1016 *Cotycarpus palmifolius*

Striped leaf rollers on hill bush, Sedalia Col, June 11-1901. Hd shiny black, apex & 2, black feet. Cth large shiny black, 3 all brown black the ant. edge of 2 & 3 narrowly white contrasting with brown stamped with purple brown as with the many white spaces. Dark line on abd. 8th seg, 2 faint sv. Tubercles minute. Black IV+V the upper small & brownish, all in white circles. Head feet black. Larva slender, a little flattened.

(Try. *Proctosia histoglypta*)

mine are *discastrigella*, Schenck's on the plant near *Scutellarellus*

1017

*Lycocampa* in flower of blue lupine. Golden Col June 18 1901. Normal, green, soft, whitish, a thin dorsal line and faint whitish 8th oblique. No star-shaped seen, 2 hairs dense whitish. In d. hair tubercles blackish. Hd & 2, 3 strongly elated. The 8th rather scalloped from ridges when well retracted. A series of stiffer hair in position of ii. Died but doubtless *Lycocampa* sp.

*Populus tremuloides* 1018 *Vicia*

Leaf rollers on cottonwood Denver June 17 1901. Roll the leaf in several turns neatly, a peristome spread with cross bands of silk transparent but open can see through & see the larva in center. Several leaves involved. Hd rounded, feet without white under 2. Black, w brown with black tubercles. Body normal, slender, flattened, a little smaller at ends. Cth shining opaque. More black behind 1 at sides shading to whitish before. Skin transparent white from feet, feet orange green. D. dorsal dark. Tubercles moderate rounded, black, faint, like with IV+V. The feet black and normal short. No spots. Ant June 25 1901. At 17/37. *Scutellarellus* (Schenck) cell

1019

Green Noctuid, probably *Taeniocampa pacifica* under cottonwood & 5 Denver June 18, 1901. Hd greenish white, lobed, normal. Body Noctuid (a little enlarged); green; d line white narrow green edged; ad broken line dotted white. Substigmatal white below on 2 & 12. Skin white dotted in center 9-10. Thorax colorless. Dead in pupa.

1020

Grope eats wild cherry and hill bush. Sedalia Col. Hd 2.5" large, cordate bilobed, erect free higher than 2, gray thorax speckled with black over vertex the spots subimbricate on outer edges of lobes. Body cylindrical, normal, tubercles coarse elated, esp. ii and iv which form high cones on 6, 7, 8, 9, 10, 11, 12. ii being large also 12. Laticorn gray with greenish black line pale filled. Abd. 8th lat, seg broken by 3 white & orange shaded patches about iv, one on spiracle. 1st, one behind spiracle below iv, orange, black edged. A sv & ad-v line, broken, irregular. Ad-v line in faint orange filled above i & ii, broken by i & 12. An orange patch vi 10. Thor. feet black, venter 10-13 white. No shield. Slightly flattened. Setae distinct dark. Tubercles black. Skin spinulose granular esp. at base of large tubercles. (Dead June 23)



1021

Looper on flowers of Parsley (yellow flowered twice divided leaf) Golden (Summit) Cal. June 20, 1901. Covered with bits of petals etc. Hd rounded erect, lobes full, free but smaller than 2. Whitish, silky, with small patches of olivaceous and a few black dotted streaks. Body lumpy, elevated and angular lat. projection on iv bearing spiracle above. 2 above what collar before a double sd link and a 3rd fringe bearing the spiracle above. 3 & 4 rings and lumpy; as also 12, 13. Lat fringe a 5-9. bearing the petals. Green, then purple, greenish tubercle & setae whitish; a raised odd line of granules curved squarish. D. & sd in measure as striae, green dark separated by white granules. (Counted setae which on the stinky tubercle, head probably iii 5, iv 6-9 and ii 12) Died in pupa.

1022

Stage I negativum quercus v. coloradensis from  
egg from Osh. Colorado Spring, hatched Jan 20, 1901  
H. Shiny brown black. erect free with 10 setae  
Body all brown red except the large brown  
shiny brown black c. pl. Head size of body, subcylindrical  
feet small, narrower than head 13 depressed.  
Setae 2<sup>d</sup>, quite a number present. Setae 4 annulate  
many supernumerary little spines !! The  
feet pale brown, all present. (See below)



1024 = 984

Noctuid on oak, Sedalia col. Desc. June 20 1901  
 slender elongate. Feet a 9:8 much smaller  
 Hd round full above oblique but apex almost wide  
 2, dark gray. heavily mottled red. black on a  
 white ground heavily a conspicuous white spot  
 on the face of each side w 1.5 mm. Body whitish  
 gray, silky. Abing. D. & ad line gray dotted (pudgy)  
 ad. stylus widened seg centrally, subgeminate;  
 5th black waved, upward a line. Lat. outfalling  
 and 2 or 3 line gray dotted, confused, subgeminate  
 The feet black tipped abd. gray dotted tubercles  
 a small black spot, ii 12 & 13 larger.

June 24 3.1 Same but ground pale brown, the 25  
 black conspicuous flesh white. D. space small  
 of the many black waves 8th band the gray  
 wave about its seg. divided, filled centrally  
 with dark dotted mottling in a pale gray  
 ground. Side pale gray dotted, a dark band  
 above spiracle a 9-v, ground of the dotted  
 being darker. Setae long pale, spines dark.  
 The shape is slender, narrowing a little 10-13  
 hind feet rather large, not much 7-8 small  
 12 very little enlarged. Phases convolutus

Body black gray speckled, waist white below d. line  
 feet velvety edged. Spines white. Venter gray, 115  
 the feet black, abd pale. No misty line

Dead July 30 1902

1025-

Arnygeter I? on willows Golden, clearing gulch  
 col. June 19 1901. Hd rounded lobed face the  
 apical angle with 1 prominent, hummock. Setae  
 mostly a center, setae black, w 4 on legs. Body  
 cylindrical, incisures deep, 11 weak, narrow. Venter  
 black, i with 5 hairs long, ii-v high hairs, small  
 & small, vi absent; i 3 hairs on 13. On the 12 + i  
 with 3 hairs, ii a + ii b separate the latter small, iii &  
 v absent, vi pale whitish, the feet green, heavily  
 mottled shaded d. with red-brown on 2, 4-5, 8-9, 12  
 Hairs black, long minutely beaded. Feet normal  
 and 4 hairs from i 11 and ten of these pale, short.  
 Cth divided into two large apical waves, 2 hairs distal  
 June 22 Hd round lobed oblique. Between the vertex head  
 pinkish, smooth brown. Body cylindrical feet distinct normal  
 11 weak, 12 larger. Venter i-iii black, many hairs, i longest  
 nearly a line than iv & high hairs; v & vi long, but pale  
 not obscure. All white on 11 & 13 pale. Translucent yellowish  
 whitish, the large d. wave bearing abundant black hairs  
 and with dark ones around the vent. esp. on 5, 8-9 and 12.  
 5th hairs and feet pale no marks.

July 24 Hd 1.8 Blackish shaded gray white around line  
 cool with d. Body whitish, more shaded to feet & collar tufts  
 a 5, 2 distinct pencils on 12 and d. hair 7-8 black.  
 Feet mostly whitish. 2 and a hair band dark brown & white  
 streak on 11. Feet and 13 pale.

July 27 Hd 1.5 black & white black are ground and a line  
 above apical hummock. Tufts on 5 hairy, dotted, on 12 old  
 distinct black; on 6-7 whitish tufts less part cloudy of  
 the many hairs. Hd on 3-4 whitish. A few long dark on  
 Body black, & white at streaks 10-12. 5th pale whitish, the  
 feet black.

July 30 Hd 2. Black, head white red sides d. to vertex  
 also center. Red black white 8th 10-12, white 9th band  
 hairs large most all white some retaining more of  
 black shading. Hair white long tufts on 5 few black  
 black, white 4th, 5th, 6th shorter than black on 5. Band  
 9th 2nd black distinct. Tufts plumed, others at  
 the end spinulose at top scarcely sharp & smooth.

July 31 1st 2.6 Same Hd black head central line, black  
 white ant. whitish. July 31 (last) July 31 2.6 gray black  
 male and female, 3-4, 5th 5, 6, 7th 12 black, whitish



1026

dotted larva, whitish green, black tubercles, webbing  
green or leave of 1021 plant, golden col,  
brownish, June 19, 1901. Hd. & shaded black.  
(See bloom) Parasys Depressaria heracharia.  
(To Bruch)

1027

white striped larva. seen white sd line with the  
preceding and taken at last but faint  
greenish, cph dilated except at edges and each  
side center. Tubercles concolorous by a white  
sd line. (See bloom)  
(To Bruch)

1028 [See A after 1033]

Egg by ♀ Loper 16774 laid mostly wedged under the leaf  
elliptical, strongly flattened on two sides on end  
prominent ridge shaped the other rounded but  
rather broadly flattened. Flat enough to look like  
disc but rounded. Crown obscurely uniserial reticulate  
the edge brown & distinct, rounded, the bottom concave  
just like a little curled edge. all dark black green  
the nets, looking a trace white. .6 x .5 x .3 mm.  
(lost all but 1 empty, refusing food; thus ate oak Hatched June 26)  
Woodrat, normal slightly elongate, capitate on top, a  
little smaller centrally. Under whitish yellow green  
food, translucent & brown shaded purple-brown ventral  
stripes slightly indented. seg. feet pale but rounded head  
testaceous, ocelli black. Dr. feet darker lighter. Cph faint  
brownish. Tubercles: rather numerous, obscure.  
This June 28 Hd. 53 mm rounded except with a large pointed  
mouth, head green, ocelli dark brownish brown. Body  
moderate, the segs somewhat folded in annulet seg.  
shiny green with fine brown black dots. on the  
side edges faint sd & lat. lines of ground color, on

the venter giving a brown dark shade which central  
and partly resolved into line at the edges. A black lat  
space on 6. S-v fold light. Feet pale normal than the  
others shaded. Tubercles obscure, sides more dark.  
(Hatched July 4)



*Selechninich f. f. f. 1029*

On mature scrub oak feeding in punk patches and  
a fine horse web on bottom two have been by  
web. very lively & jumping to the ground without this.  
Slender; hd small rounded bilobed, pale & high defined.  
head flat; pale brownish brown. Shield pale with  
brown dots just on corner. Body slightly flattened,  
irregularly denticulate. A row of add. 1 sd. Graph  
brown dots, the latter stronger, more nearly forming  
a line. Dots irregularly shaped, 2 per seg on 3.4  
included making the dorsal part. 1 cut side  
a little later than reaching the shield makes a  
a faint lat. brown line. Tubercles small black,  
in the pale marks, 12 + 8 but 16. 11 separate.  
Setae distinct, not long. End color pale greenish.  
Cut. July 15 1901 cut 17496

1030

Oste. Polyommatus

July 4 1901 16943 June 23 1901. Spherical rather  
as base almost 40 ribbed, dimpling toward vertex.  
Ribs strong, narrow, the space concave with distinct curved  
line, strong, almost as distinct as the ribs lines.  
Vertex bluntly reticulate, yellowish white, stained with  
a brown irregular red ring. D. 6 height 4.5 mm  
Hatched June 28 1st inst. vertex a 2 pointed declivity, eye black  
Red, cylindrical thick, 12 long d., reddish whitish prod  
faintly green, tubercles large round black distinct normal.  
12-11b separate equal, 12 behind, subgenital absent. Shield  
and dry pale blackish denticulate narrow. Setae pale  
End June 1 1st 5 rounded blackish. Body blackish, green  
fine prod, set, anal vt. 1 rather large tubercle  
black trace of white d. & 2d line. Feet pale  
7.8 a little shorter, shield blackish. Setae pale  
End July 6 1st 9 mm. dark brown dusky blackish on 10b  
round, strongly bilobed, apex slightly under 2 but erect.  
Body dark robust, cylindrical, no enlargements. Dorsal  
green brown the spiracles faintly mottled a pale  
faintly brown in the dorsal line. Below dorsal

thorax pale, slightly pinkish. Tubercles distinct  
noted. Blackish, normal in all top spiracles. Feet, long  
shields dusky blackish. Setae rather long pale curved  
July 9 1st 1.2 dark dusky brown. 15 pale rounded  
erect, slightly retracted. Dorsal brown, mottled, 12  
line diffuse above, obscure pale. Color fading becoming  
more oblong. Tubercles black. Above colored with  
defined marks.

July 17 1st 1.8 same, pale, obscure rounded. Dorsal  
faint brown pale, mottled, all reddish brown.

End Aug 13 1901 cut 18007 *Canadina extrema* Wlk

I described most. having 18007 cut 1800  
IV 322 1899



*Chamaenerion angustifolium*

1031

Larva in terminal leaves of *Epilobium*? Silver  
 Plume Col. Jun 23 1901. Larva terminal leaves  
 which grow upright and eat out hind. Stem con-  
 tinuous. Short and chunky, wrinkled, skin fine  
 granular. Intestine small brown; in a line, is  
 and v. d. line rather narrow. Skin smooth.  
 Greenish, rose shaded all over dorsum. Hd  
 small  $\frac{1}{2}$  x 2 mm, col large shiny brown. Eyes  
 with a central crease

1032

Eggs of looper 17071 Golden Summit, Jun 27, 1901  
 Elliptical, rounded, rounded flattened at 2 sides, the  
 flat side strongly & concavely flattened again for  
 a small elliptical space in the center. Each mass  
 white, evenly rounded, one very slightly the rim  
 pointed, no perceptible truncation. Compared  
 smooth except for the minute white punctures that  
 make the pores at the v. of the obsolete ribs. Surface  
 pale yellow, slightly shiny. Lat. loose.  $1 \times .7 \times .6$  mm  
 Some shaded in pink, (some developed but failed  
 to hatch - July 11)

1061 Cont. Pale brown, antenae in an X mark a shade  
 darker; mouth & small antennae dark brown, scales  
 black. Prof flattened, segs. proventr. lateral, 2 long  
 3 small but still longer, 4 about size of 2, 5 suddenly  
 smaller then slightly larger to 8 & small to end, which  
 have rather thick and robust. 13 small round 2 & 3  
 d. shaped as if 2 has no distinct plate. Venter like  
 dorsal, no feet, flattened leaving the sides much  
 1 and slightly lumpy from the folds. All pale  
 honey yellow. Some weak pale setae laterally  
 but none on d. or v. aspects. The ends 2-4, 12-13  
 somewhat orange tinted.

Ant July 19 1901 Ant no. 17575



1033

Egg by ♀ Luper 17073 Golden col (cucumber) June 27 1901  
 Elliptical, well but somewhat flattened on 2 sides, in  
 end depressed the other rounded, concave but  
 rounded truncate. Ret. coarse, broad, raised,  
 slightly whitish. Color olive green,  $1.7 \times .5 \times .3$  mm.  
 Hatched June 30 Hd rounded, slightly bilobed, oblique  
 erect, pale brown, ocelli black. Body rather short, a  
 little flattened 13 segments in angular tubercle.  
 Whitish, a very narrow purplish line and a broad  
 somewhat diffuse red on point at ends and cross  
 streaked on dorsal seg. 5-9. Venter brownish  
 purplish shaded throughout like the feet pale. Setae  
 pale tubercle invisible feet normal. (Dead)

1028 A

Luper on white woolly rooted plant Golden col  
 July 1, 1901. Seems to be same as 1028.  
 Vol 1.9 rounded bilobed, smooth rather prominent,  
 purplish green, a white diffuse streak, green dorsal  
 up face of each lobe, a brown shade from mouth to  
 above ocelli and faint streak in A. Body normal  
 moderate seg. somewhat moniliform, slightly  
 brown green, 3 subcompunct narrow points of white  
 fine and a on the sides more distinct, seg round  
 broad white. Tubercle with 4 dark line and a small  
 round, somewhat indistinct and subcompunct like  
 the dorsal ones. Slight brown seg. shade sdv seen  
 under lens. A dark lat. spot on 5. Tubercle small  
 white with black hair tubercle. The feet brown  
 shield concolorous with body.



1034

larva on mature white oak *Sedalia col* (Dec 27)  
 Hd round bilobed on sutures depressed, brown, vertices  
 notched in center, a pale dilated stripe ventrally on face  
 1 each side w. 1.3±. Body cylindrical normal moderate  
 lumpy; slightly wrinkled colored between 2 & 3, a low  
 sd cone bearing it on its outer base on 7, a similar one  
 on 10 but it more nearly at its vertex. Skin irregularly  
 creased annulate, slightly wrinkled. Illusion white  
 green dorsal from shaded in a faint dorsal lattice  
 darker shaded about the bright white 2-3, cream  
 brown on the lower 7 & 10, and fine faint dotted  
 in longitudinal line. Tubercles small black spots  
 setae obscure. No shields, no columns. Central segs  
 twice as long as broad. Thorax black with thick hairs  
 (Dec 30)

Probably *Neotoma excelsa* Stk (February)  
 bred this commonly on oak in Aug. and N. May.

1035

eggs by *C. crocata* 17070 Golden Col, Fort Hill, June 27 1901  
 Rather low, rounded, covered the three plates and  
 slightly rimmed, shiny pale yellow. Ret. narrowly  
 linear irregular hexagonal but recessed, faint D-6  
 found dull pink. Hatched July 1 (not mated) cocoon  
 pale luteous shiny, many fine shaded on vertex, eye  
 black. Body normal, aculeiform pale luteous, with 1 third  
 mottled. Hair dark long, especially long from 5-6 & 12.  
 Warts 1 conjoined in dorsal line into a single pentagonal  
 shield 5-11, ten separate elongate 11 shields on 12  
 single barbed; 1 single hair, produced from 1 dorsal,  
 III-V single normal (vi absent) On dorsal a + i, ii & iii & iv  
 separate, ii & iv, in large, vi moderate, no subspiracles.  
 Warts 13 consolidated. Hair ii-iii black, rest white. Spiracles  
 shield not haired, divided notched behind. Feet color-  
 less, very long and slender esp. the abd. normal.  
 July 8 Hd dark, bilobed, shiny. Body greenish from  
 good transparent shiny. Warts small with numerous stiff  
 hair, 1 moderate, slender. Hair dark, spinulose.  
 July 12 Hd & abd. shiny black bilobed. Body shiny  
 dark luteous with black, 1 small paired. Hair black  
 moderate even elongate barbed.  
 July 24 Hd 1.4 (observed three) bilobed aculeiform black  
 Body brown, not dark, rather small sp. by late color  
 with iii & iv tinted, a streaked dull orange d. line  
 Warts black. Hair black & pale s-v, rather bristly  
 sparse, large post. Warts well elevated, round, 1 small  
 it absent the rest large. All have black hairs at  
 anterior, white ones at base, but more black d  
 spinning July 29 bilobed white

Aug 8 1901 cat no 17974-5  
*C. aurantius* 1th



126  
last, but not exceeding edge of body. Abt. 7-14, 13 the  
largest. Color black. Small retracted. Venter of 2 subcor-  
nif. The feet almost rudimentary. No marks.  
No visible setae. *Leucophaea albella* (Russek)

1036

Leaf miner in cottonwood, narrow leaved willows near  
Mormon Col, June 28 1901 (by Caudwell) On  
black blotch mine (see sample pinned) Sent to Buck  
all white flattened cylindrical, feet normal, 5-6 smaller  
like a unit. A large black mine under upper ep.  
but larvae grass continuous along to lower making a  
large dead blotch through. Several in each mine, partly  
side by side, but contained. Hd black, rounded, a hard  
sharp & narrow & black above, whitish, 2 black, 2 black  
with a white above, 3 a larva, mouth narrow pointed  
brown mandible small, normal. Body slender, flattened  
laterally, moniliform, 213 larger than 415, 6-10 apic  
a little larger, subequal 11-12, 13 tapering, smaller &  
smaller, 13 divided but the apices of equal width.  
Eggs present as a slightly wrinkled area dark perfectly circular  
slightly. 7 present large filling whole dorsum of 9-10, yellowish  
faint, segmented. This part very short, appressed, pointed

1037

Eggs of insect 17121 Mormon Col June 29 1901.  
Cylindrical, ends rounded, the anterior end a little to  
more obliquely. Ventral diameter considerably exceeding  
the lateral, somewhat barrel shaped like a bean.  
Surface flattened; laid loose. Ribs distinct, rounded,  
rounded rectangular & capae. The ventral one is  
little more pronounced, suggesting ribs, though not  
strongly developed, a little fluted, rather numerous  
very pale yellow, slightly shiny. Height 9, do 7 mm.  
Hatched June 6 Hd blackish pale brown. Venter black,  
grey, erect. Body normal, 12 count enlarged, whitish  
the feet faint brown; labent small, round black.  
Eggs small distinct, round black; and 12 count, feet of  
2-8 smaller than 9-10. (Seems to like hard deep red stuff)  
(Seems failed to eat)

*Uroleuea dilecta* Hy. Edwards



1038

Leaf miner in broad leaved cottonwood Denver Col  
 June 24, 1901. Elliptical blotch mine much  
 like *epidemia*, white, finely marked through &  
 ripple in dots & punctures usually more or about  
 the edges, white. About  $17 \times 9$  mm. A slight  
 fold scurled down the long diameter. Single in  
 mine 2 on a leaf. Cocoon elliptical  $7.5 \times 4$  mm  
 in center of mine. *Lithocolletis*? Not consolate  
 but very slightly lobed, a slight bend sharp but round  
 to a point when it bends round, white, entire  
 and a deeper shade in lat. margin. From a black  
 speck with a smaller one within in the face of  
 each lobe. Several black spots on ventral aspect of  
 antenna orange but distinct. Body arched above  
 greatly flattened below reniform,  $3.9$  longer  
 than  $2$ , 5 small then gradually larger to  $9$  &  
 gradually smaller to  $13$  which is broadest divided  
 but not sharply small. Other weak, concolorous  
 3-6 white, 7-12 yellow with large rounded <sup>feeling knot</sup>  
 from black dorsal spots, darker ventral spots in  
 6-12 and faintly a 5. 13 somewhat transverse  
 entire above & below. Thor. feet long, prolegs  
 lateral, exceeding body, well jointed. abd.  
 sessile, represented on 7-9 by a bunch of curved  
 behind and a single one before each joint; on  
 13 a more distinct foot with double row below  
 inside & outside. No feet on 10. Setae long brown  
 from small distinct tubercles,  $ia$  &  $ib$  as a pair,  
 $ib$  large,  $ii$  &  $iii$  somewhat and pinnate  $ii$  &  $iii$  large,  
 then  $iv$ ,  $v$  and  $vi$  small in line,  $ii$  large,  $iii$  also a  
 little behind the small and situated apically;  $iv$   
 below & well behind,  $v$  and  $vi$  obsolete. Subprimaries  
 apparently all absent by reduction. No ventral setae.  
 Hair fine granular deepened, not distinctly so.  
 Orange all colorless to do but black cells at eye  
 and and well rounded legs subequal throughout,  
 setae from the same. Aug 9 1901. Cat. no. 17183

1039

Butterfly larva to J. Platte Canon July 3 1901. Larva con-  
 solate but with continuous broad d. & lat. stripes  
 same? Larva on thick leaved plant Element July 7 (Candell)  
 Black d. & lat. line even dull orange stripe sub-mem-  
 brate pale on ① and ③.  
 Aug 9 1901 Cat. 17335 *Carlotha*

1040

*unibelifera*

*Squimulosa* webbing leaves of 1021 plant Golden  
 Col July 2 1901. Not consolate shiny black apertures  
 pale. Should be black in broad part - lat  
 line & ant spot. Prolegs normal, incision deepened,  
 feet transverse. Legs oblong 3-articulate or (old)  
 double feet pale normal. Tubercles slightly elevated  
 concolorous.  $ia$ ,  $ib$ , separate  $ii$  &  $iii$  approximate  
 $iv$  &  $v$  normal. Hair tubercles black. Setae long pale.  
 No marks but set d. shaded with red when to J.  
 Aug 15 1901 Cat. 17495 *Leopold* in Busck's Dip. paper  
*Depressaria muricollis* Busck

*Selechia ocellella* Clem 1041 Aug 19 Cat 17573-4  
*Squimulosa* a Poison Ivy Platte Canon July 3, 1901  
 Folding over a cut piece of leaf. Larva young leaves  
 slight web tubercles style Not consolate but  
 oblong apex wide & when retracted, between  
 brownish mottled, ventral narrowly narrow  
 black or lat. all shiny black apertures  
 shining pale. Should be black with a pale dividing  
 line and ventral patch in each  $\frac{1}{2}$  in transverse  
 much a narrow somewhat irregular dark.  
 Seen, dorsal all shaded in prolegs, narrow  
 d. black sd. fainter & slightly broken lat.  
 & stig whitish bands. 3-4 green d. in incision  
 tubercles pale, concolorous, hair tubercles black.  
 Normal,  $iv$  &  $v$ ,  $ia$  &  $ib$  separate  $ii$  &  $iii$  approximate  
 head normal incision deepened. Feet of 2-3 black  
 or feet pale black apertures. All feet green



Endall 1042 Rd.

Egg by 4/17/98, *Armeria unicolor*? Platte Canon July 3, 1901  
 Elliptical evenly rounded on diameter less than the  
 other but not flattening or truncation; ventral end  
 perceptibly depressed. Pale ochraceous the surface  
 finely reticulate in sculpture, the line broad, rounded.  
 Reticulation regular, a color not any perceptible structure,  
 surface very fine uniform granular shapeless. This  
 very delicate dent in when treated in air plate  
 not again. Size .8 x .7 x .6 mm. Laid adjacent in three  
 four range. Very in size some being  $\frac{1}{2}$  the bulk of other 12.  
 Hatched July 8 Hatched. Hatched flat before, rather  
 thin, erect, black. Body slender, greatly elongated, legs  
 slightly swollen s-v. This pair distinct, approximate and  
 small rounded in 10413. All pale yellowish the legs feet  
 very tinted; faint s-v brownish seg. spots. Tubercles small  
 black, setae short, darkly, slightly enlarged at tip. Ground feet  
 with weak blackish streaks and a pair of spinules on  
 segments. Spinules on anal feet. A faint subapical  
 tubercles almost s-d on 2. Setae oblique black 6-13, ground 2-5.  
 (and everything in Platte Canon in good. like violet from Widen July 12)  
 Hatched July 8 Hatched. 5 rounded blackish erect free. Dark brown  
 Hatched with darker in anterior and sides of lobes.  
 Body slender elongate got rounded, approximate at the  
 extremities. Pale brownish, greenish from food, a broad  
 blotchy, faint faint red brown band a round dark brown  
 blotch on 5-9 and faint on 10. Thoracic line whitish.  
 Setae faint obscure, annulate. Setae short stiff black. No shield  
 (Dead July 23)



1043

Entered on wild cherry Golden Col. (Mammals)  
July 6 1901. Solitary, webbing together a leaf as it  
is about along the midrib in halves looking not  
opened, no web shown. Pupa the inside till all  
brown, yellow & large larvae. Only humps apparently.  
Hd broad, brown, shiny luteous, 2 & 3 vertex, cells  
large black. Body rather flattened, tapering slightly  
at the ends, wiggly shaped. Segs not strongly annulate.  
Shiny translucent pale green. Cdh large, pale luteous  
and contrasted. Tubercles a little elevated col-  
ored, concolorous, iasit, ii asit, iv as luteous involut  
pal. No warts. Tracheal lines shown white.  
(all dead Apr 28 1902)

1044

Enter eggs laid on top of a woodbine leaf Platte  
Canon Col. A flat mass overlapping like shingles.  
Elliptical shiny translucent yellowish. Feet scale-like  
mass 9.5 x 4.5 mm, egg 7 x .5 mm. Rts linear  
irregularly elongate hexagonal as in crows.

atched July 7 Hd shiny black minute pale, bilobed  
oblique. Body slender subcylindrical, all pale yellow  
without shields or plates. Tubercles obsolete, setae obscure  
Body irregular not tapered. Feet normal, pale, short.  
(Cdh sparingly iridescent & wild cherry)

atched July 10 Hd pale luteous Body greenish transparent, no warts.  
July 21 1st inst. csh black.

atched July 24 Hd black as pearl. No warts or venter shield  
dotted green in front, brown centrally. Mark a sin  
dus of black along all green. no dorsal shade  
repating now. Epistoma & bases of ant. white

atched Aug 9 Ant 17976

Copy for Lewis XXXVI

*Synonymia subocularia* St

1045

atched July 22 1264 July 7 1901. Larva and rolling elliptical.  
side rounded flattened, transverse rounded, a little  
oblong, outline is general & little irregular, no  
end depression. Rts circular-hexagonal, rounded  
carried thin cell across forming round pale like a  
thrinable stake cell over. Pale yellowish green turning  
darker. 6 x 5 x 4 mm. Roll easily.

atched July 22 1264 July 7 1901. Larva and rolling elliptical.  
side rounded flattened, transverse rounded, a little  
oblong, outline is general & little irregular, no  
end depression. Rts circular-hexagonal, rounded  
carried thin cell across forming round pale like a  
thrinable stake cell over. Pale yellowish green turning  
darker. 6 x 5 x 4 mm. Roll easily.

atched July 19 1st + 2nd inst. luteous darker except on the head  
from 5 or each side. Body normal, rounded, solid  
luteous with 5 broad brown lines as broad as before  
marked by numerous fine brown spaces. Capitate  
line 1-4 brown color, 5 joints at ends. ad. 1-5. 1st inst.  
Tubercles obsolete with short capitate setae also obsolete  
the enlarged dark looking later inst. Segs finely annulate  
(line recur to 1st ad. 1st, 2nd, and 3rd of 1st inst. v)

atched July 25 1st 6 rounded bilobed. brown pale mottled, a pale  
curved line on each side shown; dotted & white capitate  
setae. Body colorate with fine red-brown line, slightly curved,  
arms on each as space. Tubercles of the drooping stem. 1st  
1-5-9. 2nd inst. Dotted & white capitate setae. Body  
annulate. Bands (iv) faintly venter

atched Aug 2 1st 15 rounded black, rather strongly bilobed, brown  
black in face, pale, dark mottled on sides and venter;  
setae pale, short, capitate. Body moderately robust, with  
reticulated, normal segs with annulate annulate  
esp. at ends, 1st full ridged, prominent a faint edge  
of seg. i and ii well separated, ii a slight prominent  
annulet. Head miniprincipal internal dark brown. Segs a  
little lighter yellowish & with trace of a pale narrow d.  
line each side which are rather irregular, faintly brown  
blackish markings, interspersed, forming a line granulate d. line.  
Feet short dark, setae with pale capitate tips. Short.  
1st ridge rounded and flattened a pale, Aug 15 larvae



thick and robust tapering from 5 to the small head.  
Dark brown, annulate faint, checked in part a dark  
or gold pale and blackened brown in part can-  
nals in segs. Venter all obscure.

Third Aug 20 Hatched 1.0 P. small bilobed, erect in apex ad-  
vanced, 0 depressed. segs. dark, apex of lobes bifid  
brown notched, apex dark white capitate. Body  
robust, attenuated somewhat before, fine annulate  
dark brown-black variegated with obscure transverse  
markings in light brown in d. dorsal shape  
faint, terminated in dark black & annules in  
incision and a black seg line, all slender & faint.  
Segs from ground. Setae short, pale, capitate. 0  
transverse pale in segs, somewhat ring shaped in segs.  
(Dead Oct 27)

marked

*Enemera juturnaria* Gu. Syn. Ent. hem. 263  
*Enemera* 135

1046 = 266

Eggs by ♀ pupae 17254, 17253 and 17255 then lost a day later  
(17254) 6 eggs. Some are rolling. Elliptical, one distinctly more  
than the other but not sharply flattened, not dis-  
tinguished at either end. Microscopically and considerably trans-  
verse the other strongly rounded both about alike but  
differentiated by the quivering. Transverse sharply  
oblique. The two sides are not symmetrical, the egg  
as rolled stopping with the same side up. This has  
a single median rimmed groove, the lower side  
two arch grooves. 12 longitudinal broad raised ridges  
forming a slender ridge about rim of transverse,  
broad raised, rounded, beaded with a double row  
of minute pores, joined by deep transverse ridges  
4 from square and also by numerous fine obscure  
transverse lines about 8 to the square. Occupying one  
square from each end the 2 central ridges and ap-  
proximated the space between depressed as a deep  
smooth groove. On the other side the two median  
ridges are depressed, their bounding ridge less sharply  
approximated the grooves crossed by striate. In one  
of the double grooves beyond one 1 square the other 2 squares  
from transverse, but with ended sharply & ending 1 sq  
from the other end. In another egg this was reversed.  
In still another there was but a single groove, but it was  
not central and less deeply marked than the dorsal  
median one. Microscopically and coarse reticulate, the  
other end being from the compound ridges. Green  
turning dark pink with ridge pale. 9 x 7 x 5 mm  
(17255) 1 egg, the same, microscopically transverse centrally elevated  
(17255) was 30 eggs. The same. The ridges overlaid the dorsal  
groove, projecting as white rim serrate by the pro-  
jected pores which appear as light brown teeth.  
Ventral grooves variable, and overlying by the ridges.  
Hatched Apr 29 1902 (Escaped from a light tin box)



1047

Egg by 4 hoppers 19259 July 1901 Elliptical, one end strongly depressed, wedge shaped, the sides concave but not flattened; micropylar end rounded, truncate. About 18 longitudinal lines stopping roughly at edge of truncation a little curved at other end. Surface smooth, narrow, raised joined by neat cross line, similar, forming low elongate parallel grooves. Alternated in successive rows. Six pores at junction of ribs. Base, heavy corded, crimson .8 x .6 x .4 mm

Hutchinsia fulva Hb. round, red lobed, mouth pointed; dark brown  
not shiny; surface of moderate & a trace darker, - pale spots  
covering epistoma. Body moderate, robust, cylindrical,  
smooth, solid white, getting pear from front, a d.  
broad brown stripe, moderate dark red a dark <sup>thin brown</sup>  
connected s-v blotch. Young larvae on 2-4 cut 10-15.  
Traces of sd: shy pale line and faint pale streaky on  
lvs. No petioles. Suberula minute black. Setae rather  
long black, not distinctly capitate. All feet reddish  
shaded. (Lvs. caenostoma)

Shed July 14 Hd. 5 rounded bilobed. Pleated before. Spotted dusky with white on face but all off vertex and sides of face dark brown. Body cylindrical, beneath dark. Claws, mouth normal. Tubercles moderate but setae mostly black distinct. Dorsum dark brown and by white on sides. Side white with 2 bands, upper a light dotted dark brown band, wider than the white space. Venter broad dark with narrow SV and rounded V which have the latter seg. maculate in dark brown and pale lined. Tubercles brown small.

(Seas 70922) *Deilimia carnaria* Hulst  
(Seas 70923) (same or *Ctenothus* [Kurokale])

(Taken 1148?) before me:

♀ not like *Hulstia* type, ground color ashen, green tinctures more  
diffuse, are strongly dorsal dot marking; terminal gray space  
more irregular, bent and edged with blackish and  
carneous markings. Exact mate to it (♀) on *Caenothus*  
*Kochela*. Other ♀ K. as this, alike, some almost too  
different but a ♂ comes very close to *Hulstia* type except  
the marginal gray shade is obsolete.

Falcata Pack & perfoliata Erte. must be new  
I think but I have seen no type.



1048

Yorpe in Ceanothus, Golden, Cal July 6 1901.  
Hd. 8 rounded lobes, flattened before each. White broad  
marked a brown. Black forming large irregular patches  
at vertex and sides leaving face pale with only a few  
dark marks. Body almost exactly as in 1006 I as that  
it was labeled thus at first.

That July 9 Hd. 1.3 as before somewhat black, dark-like.  
Peculiar white, face spotted in brown points, vertex  
& sides with brown transverse stripes molting  
forming a band about face. Body white moderately  
marked. Ovipositor pale, 1st 2nd white, darker  
edges, joined by whitish. White blotches on 5-6 to 78  
lvs. brown white, similar blotched to deeper yellow  
dip. Venter similar white kind a row of large  
pale brown seg. 5-8 blotches. Feet purplish shaded  
on shields. Tubercles. A few small black maculae  
another (collected) Hd 2.1 in same but the stripes  
brown marks on face. Body same, all white shaded  
the sty has connection with the venter and all  
has a little white than body. Seg. 5-8 blotch 2-9  
pale pale brown, joined dark. Feet brown shaded.  
Spiracles brown. Tubercles & setae as before

=1047?



1049 (see 1045)

Egg by 2 loops 17304 Pine Grove, Col. July 9, 1901.

Laid on glass but not off hand. Elliptical to side  
greatly roundedly flattened, one end obliquely rounded  
towards the other rounded not depressed. Rets  
rounded hexagonal raised but rounded, un-  
colorous, the pores at 5 rounded, embossed as with  
low white cones distinct except on the sides when  
from the base of attachment when they are absent.  
Through the rets are the same. Green, shiny, white  
dotted by the pore cones.  $8 \times .6 \times .5$  mm  
In turn dull deep pink. *ate Polygonum*

Hatched July 15 - 1st rounded oblique, dull orange ochraceous.  
Body rounded slender, cap. a little bulging centrally  
somewhat elongate, narrow. Very white, greenish  
tinged, a broad straight dark brown set band a little  
diffusely widened at c, the feet conjoined at c. High  
raised band 10-13. A broad similar ventral band,  
very slightly widened at c, coloring and feet. This in  
yellow. Tubercles a setae small dusky obscure.  
Head as above except the anal externally. *ate Polygonum*

July 18 Hatched 5 rounded squarish, dorsal bilobed, whitish  
dorsal as entire brown with range of brown dots  
red along from its own lobes. Body whitish rounded  
as before the set bands from behind narrow at 13 diff-  
erent the ventral band supplemented by a series of  
10 brown patches and, in segs, tubercles from color but

July 22 Hatched 7 circularly rounded, slightly bilobed, dark  
gray and a minute space each with light gray  
venter obscurely dotted streaked. Body rounded  
head stiff the lat. oblique dark gray, shy region rather  
broadly blotched in whitish. Feet obscure white  
broken narrow longitudinal line. Dorsal faint  
lat. broken, the seg region faintly blotched in dark.  
Venter with obsolete pale line (Resembles 1050)

July 24 Hatched 1.6 rounded, slightly bilobed, oblique pale gray  
thickly mottled in black at the center of lobes leaving a  
gray line with narrow brown line at center and lobes 6-10  
The mottling from 3 ventral bands of which the lower one is  
faint. Body a little flat so feet dark round, head

stiff. Tubercles a little enlarged, cap ii of 8 and 12  
which are rather prominent. Gray with lat. dorsal  
whitish longitudinal streaks, oblique set black above a  
5 hairy & covering dorsum, or gold blotches & light  
and with a dark hairy broken back & venter  
oblique lineated. Tubercles black feet concolorous.  
July 30 Hatched 2.2 rounded, slightly bilobed, lobes full  
type wider than 2 but head obliquely flat, fine  
spines nearly reaching vertex. Head black dotted  
mottled in light gray ground, the 12, 13, 14 and 15  
space each side & at base with the light color  
predominating. Yellow and long curved antennae  
dark. Body cylindrical, elongate, black like before  
slightly knotted. A low elevation from ii of 5, ii of 11  
in cervical produced and the 11 venter of 12 are slightly  
elevated. Dark gray blackish dotted in all do-  
find markings like back. Dorsally and venter of  
eye are plain, front black stryose in a pale gray  
fine; feet barbes acuminate, marked in dark d.  
a single set broken irregular whitish line. ii of 5  
surrounded by white, other tubercles black. 2 and 13  
small, pale gray. Setae venter uniform stryose  
a pale ground, faint longitudinal line and  
with a little reddish shading in patches ventrally  
the feet pale black dotted, 2-3 head apparent, 4 and  
at 1025 with body like a knot on top. Feet of 10  
nearly white externally, and feet colored like anal feet  
To July 6 in position of feet ventral opening.



*Exochus*  
*gustator*  
*1881*

1050

XXII

Egg of *Exochus* 17298. Adherent but easy off. Elliptical  
narrower in one diameter as usual, one side a  
little straighter than the other giving a suggestion of  
reniform shape. Nerveless and roundly truncate  
the other not depressed. Ret. rounded elevated but  
with sharp angular crests, regularly hexagonal ret.  
Some perfect hexagons the cell areas shallow pits.  
Ret. large, uniform all over, pores at angles in round  
whitish cones but not distinct nor indicated. Egg  
uniform green over almost a inch side. 1 x 6 x 5  
later than radial nearly pink. All with many  
Hatched July 14. Hd round oblique, fr. dull grayish  
blackish a faint darker band on the side. Body  
moderate, rounded, rather slender. Munch, from  
white a broad straight even purple brown set and  
a little diffused spreading a c. the pair conjoined  
with a single d. 10-13. a similar colored broad ventral  
band, dorsum a little on the segs. coloring feet of  
10 and 13 a c. line. Thor. feet pale. Tubercles on seta  
small, dark, obscure. Head large, scarifying each other  
(the hind cherry)

Head July 18. Hd. 5 rounded lobed and whitish mottled with  
brown on the lobes. Body grayish, white the head deep  
brown set bands joining behind as before. ventral band  
supplemented by sv seg. blotches diffused forming a line  
and pale outwardly. sd band divergent to pleurae as 2  
tubercles & setae remaining.

July 22. Hd. 8 round erect gray streaked with dark dots  
seg. on line on each lobe. Body moderate, gray, blotched  
with lighter sv suggesting diamond shaped marks,  
and lighter along sv fold. No distinct marks on  
trace of pale lines, rather numerous fine, a faint  
d. annular band conspicuous whitish. Setae minute.

Head July 24. Hd 1.3 rounded, oval lobes, broad, gray brown  
9390 and a d space each side whitish, forming a line  
5 round, black edges & traversed by black diffused marks.  
10 & 11 mottled in dark seg. on 3 lines 11 ventral bands  
appearing geminate. Body moderate, rounded, the tu-  
bercles slightly elevated, segs subcylindrical post.  
black gray, faint longitudinal line on pale.

a very faint darker sd band and blackish dashes  
ant. on seg. above pale sv fold, 10-13 more  
heavily black shaded. No well defined marks  
Tubercles blackish, setae short. Feet subcolorous.  
Anal plate large. A pair of short anal wings.  
A distinct short d. collar elevation on 5.  
Head July 27. Hd 2.0 Rounded, slightly lobed, long, full  
oblique. Whitish, all the space covered with pale  
gray mottled blotches, gray & black white segs on  
the side. A broad low d. white space, edged with  
black above, traversed by d. & suture; epistoma gray  
anterior moderate, incurved. Body moderate,  
central seg. not quite twice as long as wide.  
A d. rounded elevation on 5. composed of 2 contiguous  
ridges bearing ii of each side; ii of ii in a line  
& dorsal low circular elevation. Anal plate each  
large round d.; a pair of narrow wings. Else smooth  
tubercles scarcely elevated black. Black gray, mottled  
in all defined shades of cinnamon, reddish. Reddish  
d. with trace of whitish sd. lat line, the post part  
of seg. annular and gray. sv fold pale with black  
darker above and a seg. venter with several irregular  
or geminate circular black lines, subcylindrical  
blotched post. on segs. whitish orange shading  
at spiracles esp. on 4 & 6. Feet gray. Spiracles  
black rimmed. Setae minute, short, 10-11  
separate, 10 slightly post; VII in d. sv not much scattered  
over any of a faint close cover of brown silk.  
Head Aug 20. Cat. no. 18081



1051

Eggs by ♀ Looper 17299 Pine Grove, Cal., July 9 1961 Adhuc,  
mostly stuck under the label. Ellipsoidal, normally but  
considerably flattened one end narrower and slightly  
depressed, the other more obtusely rounded but not  
truncate. Rets coarse sharp, elevated, rather broad  
arranged in quadrangular cells centrally but curved  
into an irregular net work at both ends, round so  
at the smaller end. Centrally on the flat side the  
cells are quadrangular & transversely elongated, edges a  
little curved. Angle faces whitish, obscure. Cell area  
moderate pits flattened. Individual pale olivaceous, whitish  
dorsal.  $1 \times .6 \times .5$  mm at thicker end.

Hatched July 15 Hd rounded end free, slightly lobed, pale  
olivaceous yellow. Body stout, rather thick, segs not elongate,  
somewhat folded, 5th ridge prominent. Saccularia small  
olivaceous, a dark streak from at caudal. Tubercles  
small, dusky, in broad whitish ring, rather short, pale  
red rounded, inconspicuous. (Failed to eat)

*Diospilota biactata* Walk

1084 cont the d. larva on 2-4, double in 2 with transverse brown  
center, broad brown on 3-4 brown dotted; broadened and  
compressed with dot on 10-12, 13 white dotted  
faint uniform 2-13 the feet 10-13 narrow white  
lined ventrally, otherwise dark. Venter gray faintly  
lined. Faint narrow blotches behind spiracles.  
(This one died. The other died to 1.4 on July 12)  
Hatched Sept 29 Hd 1.7 Same but aquant rounded dark flatish  
before, rather slightly notched, black faint white dotted  
a broadly rectangular band on vertex, each lobe white  
containing 2 black dots, epinotum white. Dots small  
small uniform, a little elongate, angled esp in 2.  
Body narrow, rather robust brown black, a broad dorsal,  
sharp edge d. & esp white band, slightly narrowed at  
sq. incisures, the 2nd faint narrow blotch below, faint  
apical. sd of venter faint white dotted like head.  
Venter gray lined & spotted, postoculocaudal median &  
lateral bands dark dusky triplicate. In this d. larva  
replaces 1 pair of ad bands, creamy very, tubercles  
irregular, subconical. On 10-13 d. band under

white dotted.

more irregular & containing white dots, ii & 12 only  
whiter, dorsal flat black-brown, a white line from  
sq. line on upper half of feet 10-13. Feet & spines  
black. Tubercles small, often from short dark.  
Segs rather numerous acuminate, faint as in foot. feet.  
Died in Dec or Jan: dead Nov 15 1962

1067 (cont). The feet short pointed (prolegit lat and  
all on segs 7-10, 13, each is a complete ellipse  
thick in front half, sparse on and half 7-10, on 13  
abundant abundant in front & front half. Hd round.  
Head, 2-2, 2 rounded & touching ventral triangle.  
Ocelli greenish, smooth, small, rounded brown, ocelli black.  
2 long setae from center of lobe. Body slender, slightly  
flattened, segs subequal but tapering post. the  
end seg. somewhat shortened, 13 divided, the below  
short but small. No striae, 2 concolorous ab.  
green. All pale greenish white, rather opaque.  
Tubercles obsolete but several setae rather distinct.  
ii and iii esp. on 12-13. Setae fine rather long dusky.  
Spine not spinning except a pair of ad. seg spots.  
Incisures well marked but occurred moniliform.



1052

Blotch mine white on back of yellow leaves, pass  
 forward out a hole or slit. Pine Grove, Cal. July 9, 1901  
 Larva tapering behind, all white shiny smooth. Feet  
 normal short, a pair of hair from each ft. Thor.  
 enlarged, 5 small. 1st dark brown, hatched at vertex,  
 2nd shape 15 to vertex 10, head just a small  
 dark brown dot. The feet short pigmented lat. (T. L. L. L.)

1053

*Acronycta* a willow Pine Grove Cal. July 9, 1901. Hd. shiny  
 black base of ant. & epistoma pale. Body black even  
 velvety smooth. Warts small but distinct white, 1 no-  
 minal leaving head & sp. 14 minute. D. hair (1 and 11) on  
 5-3 and 12 grey red red pale yellow, red short and  
 not abundant. A few large hairs at the end. Spinous  
 white. Tubercles on 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th  
 orange yellow 2-12 and 13 dark. Feet black.  
 Spun on leaves July 12

1054

Grabbing young leaf of aspen cottonwood Pine Grove Cal.  
 July 9, 1901. Folded the young leaf with web which  
 reaches down to petiole and stem, broad band-like  
 and extremely, forms a tube within the leaf.  
 1st pale brown shaded over vertex of head with reddish  
 scales black. Second 1 and 11 pale. Translucent  
 tubercles tinged. Body of yellowish white, 1st lat.  
 (1st part) blotched, irregular edged dull purple  
 and leaving the small black tubercles on  
 the pale part. 1st a whitish, 11 a bit approximate  
 14 + 15, very small. Loss of 1-6 perfect shoddy  
 setae moderate pale feet normal. Shed, green  
 1st July 22 Cut 17762

*Selechia pravinominella* Chant.

1055

Twined on *Ceanothus* Golden Cal (San Joaquin) July 9, 1901  
 Spin a delicate web over feeding leaf. Side in a  
 sulcus whitish leaf or between leaves. 1st rounded  
 apex a 2, shiny black, tubercles a 2, shiny black.  
 Both thick but flat. C. 1 large, black, all of 2 black  
 and 3 various black 3 in front & 4 in front narrow  
 but conspicuous colored in bright white. This part  
 black. 1st a bit separate, 11 a bit, 14 + 15, 16 + 17, 18 + 19, 20 + 21, 22 + 23, 24 + 25, 26 + 27, 28 + 29, 30 + 31, 32 + 33, 34 + 35, 36 + 37, 38 + 39, 40 + 41, 42 + 43, 44 + 45, 46 + 47, 48 + 49, 50 + 51, 52 + 53, 54 + 55, 56 + 57, 58 + 59, 60 + 61, 62 + 63, 64 + 65, 66 + 67, 68 + 69, 70 + 71, 72 + 73, 74 + 75, 76 + 77, 78 + 79, 80 + 81, 82 + 83, 84 + 85, 86 + 87, 88 + 89, 90 + 91, 92 + 93, 94 + 95, 96 + 97, 98 + 99, 100 + 101, 102 + 103, 104 + 105, 106 + 107, 108 + 109, 110 + 111, 112 + 113, 114 + 115, 116 + 117, 118 + 119, 120 + 121, 122 + 123, 124 + 125, 126 + 127, 128 + 129, 130 + 131, 132 + 133, 134 + 135, 136 + 137, 138 + 139, 140 + 141, 142 + 143, 144 + 145, 146 + 147, 148 + 149, 150 + 151, 152 + 153, 154 + 155, 156 + 157, 158 + 159, 160 + 161, 162 + 163, 164 + 165, 166 + 167, 168 + 169, 170 + 171, 172 + 173, 174 + 175, 176 + 177, 178 + 179, 180 + 181, 182 + 183, 184 + 185, 186 + 187, 188 + 189, 190 + 191, 192 + 193, 194 + 195, 196 + 197, 198 + 199, 200 + 201, 202 + 203, 204 + 205, 206 + 207, 208 + 209, 210 + 211, 212 + 213, 214 + 215, 216 + 217, 218 + 219, 220 + 221, 222 + 223, 224 + 225, 226 + 227, 228 + 229, 230 + 231, 232 + 233, 234 + 235, 236 + 237, 238 + 239, 240 + 241, 242 + 243, 244 + 245, 246 + 247, 248 + 249, 250 + 251, 252 + 253, 254 + 255, 256 + 257, 258 + 259, 260 + 261, 262 + 263, 264 + 265, 266 + 267, 268 + 269, 270 + 271, 272 + 273, 274 + 275, 276 + 277, 278 + 279, 280 + 281, 282 + 283, 284 + 285, 286 + 287, 288 + 289, 290 + 291, 292 + 293, 294 + 295, 296 + 297, 298 + 299, 300 + 301, 302 + 303, 304 + 305, 306 + 307, 308 + 309, 310 + 311, 312 + 313, 314 + 315, 316 + 317, 318 + 319, 320 + 321, 322 + 323, 324 + 325, 326 + 327, 328 + 329, 330 + 331, 332 + 333, 334 + 335, 336 + 337, 338 + 339, 340 + 341, 342 + 343, 344 + 345, 346 + 347, 348 + 349, 350 + 351, 352 + 353, 354 + 355, 356 + 357, 358 + 359, 360 + 361, 362 + 363, 364 + 365, 366 + 367, 368 + 369, 370 + 371, 372 + 373, 374 + 375, 376 + 377, 378 + 379, 380 + 381, 382 + 383, 384 + 385, 386 + 387, 388 + 389, 390 + 391, 392 + 393, 394 + 395, 396 + 397, 398 + 399, 400 + 401, 402 + 403, 404 + 405, 406 + 407, 408 + 409, 410 + 411, 412 + 413, 414 + 415, 416 + 417, 418 + 419, 420 + 421, 422 + 423, 424 + 425, 426 + 427, 428 + 429, 430 + 431, 432 + 433, 434 + 435, 436 + 437, 438 + 439, 440 + 441, 442 + 443, 444 + 445, 446 + 447, 448 + 449, 450 + 451, 452 + 453, 454 + 455, 456 + 457, 458 + 459, 460 + 461, 462 + 463, 464 + 465, 466 + 467, 468 + 469, 470 + 471, 472 + 473, 474 + 475, 476 + 477, 478 + 479, 480 + 481, 482 + 483, 484 + 485, 486 + 487, 488 + 489, 490 + 491, 492 + 493, 494 + 495, 496 + 497, 498 + 499, 500 + 501, 502 + 503, 504 + 505, 506 + 507, 508 + 509, 510 + 511, 512 + 513, 514 + 515, 516 + 517, 518 + 519, 520 + 521, 522 + 523, 524 + 525, 526 + 527, 528 + 529, 530 + 531, 532 + 533, 534 + 535, 536 + 537, 538 + 539, 540 + 541, 542 + 543, 544 + 545, 546 + 547, 548 + 549, 550 + 551, 552 + 553, 554 + 555, 556 + 557, 558 + 559, 560 + 561, 562 + 563, 564 + 565, 566 + 567, 568 + 569, 570 + 571, 572 + 573, 574 + 575, 576 + 577, 578 + 579, 580 + 581, 582 + 583, 584 + 585, 586 + 587, 588 + 589, 590 + 591, 592 + 593, 594 + 595, 596 + 597, 598 + 599, 600 + 601, 602 + 603, 604 + 605, 606 + 607, 608 + 609, 610 + 611, 612 + 613, 614 + 615, 616 + 617, 618 + 619, 620 + 621, 622 + 623, 624 + 625, 626 + 627, 628 + 629, 630 + 631, 632 + 633, 634 + 635, 636 + 637, 638 + 639, 640 + 641, 642 + 643, 644 + 645, 646 + 647, 648 + 649, 650 + 651, 652 + 653, 654 + 655, 656 + 657, 658 + 659, 660 + 661, 662 + 663, 664 + 665, 666 + 667, 668 + 669, 670 + 671, 672 + 673, 674 + 675, 676 + 677, 678 + 679, 680 + 681, 682 + 683, 684 + 685, 686 + 687, 688 + 689, 690 + 691, 692 + 693, 694 + 695, 696 + 697, 698 + 699, 700 + 701, 702 + 703, 704 + 705, 706 + 707, 708 + 709, 710 + 711, 712 + 713, 714 + 715, 716 + 717, 718 + 719, 720 + 721, 722 + 723, 724 + 725, 726 + 727, 728 + 729, 730 + 731, 732 + 733, 734 + 735, 736 + 737, 738 + 739, 740 + 741, 742 + 743, 744 + 745, 746 + 747, 748 + 749, 750 + 751, 752 + 753, 754 + 755, 756 + 757, 758 + 759, 760 + 761, 762 + 763, 764 + 765, 766 + 767, 768 + 769, 770 + 771, 772 + 773, 774 + 775, 776 + 777, 778 + 779, 780 + 781, 782 + 783, 784 + 785, 786 + 787, 788 + 789, 790 + 791, 792 + 793, 794 + 795, 796 + 797, 798 + 799, 800 + 801, 802 + 803, 804 + 805, 806 + 807, 808 + 809, 810 + 811, 812 + 813, 814 + 815, 816 + 817, 818 + 819, 820 + 821, 822 + 823, 824 + 825, 826 + 827, 828 + 829, 830 + 831, 832 + 833, 834 + 835, 836 + 837, 838 + 839, 840 + 841, 842 + 843, 844 + 845, 846 + 847, 848 + 849, 850 + 851, 852 + 853, 854 + 855, 856 + 857, 858 + 859, 860 + 861, 862 + 863, 864 + 865, 866 + 867, 868 + 869, 870 + 871, 872 + 873, 874 + 875, 876 + 877, 878 + 879, 880 + 881, 882 + 883, 884 + 885, 886 + 887, 888 + 889, 890 + 891, 892 + 893, 894 + 895, 896 + 897, 898 + 899, 900 + 901, 902 + 903, 904 + 905, 906 + 907, 908 + 909, 910 + 911, 912 + 913, 914 + 915, 916 + 917, 918 + 919, 920 + 921, 922 + 923, 924 + 925, 926 + 927, 928 + 929, 930 + 931, 932 + 933, 934 + 935, 936 + 937, 938 + 939, 940 + 941, 942 + 943, 944 + 945, 946 + 947, 948 + 949, 950 + 951, 952 + 953, 954 + 955, 956 + 957, 958 + 959, 960 + 961, 962 + 963, 964 + 965, 966 + 967, 968 + 969, 970 + 971, 972 + 973, 974 + 975, 976 + 977, 978 + 979, 980 + 981, 982 + 983, 984 + 985, 986 + 987, 988 + 989, 990 + 991, 992 + 993, 994 + 995, 996 + 997, 998 + 999, 1000 + 1001, 1002 + 1003, 1004 + 1005, 1006 + 1007, 1008 + 1009, 1010 + 1011, 1012 + 1013, 1014 + 1015, 1016 + 1017, 1018 + 1019, 1020 + 1021, 1022 + 1023, 1024 + 1025, 1026 + 1027, 1028 + 1029, 1030 + 1031, 1032 + 1033, 1034 + 1035, 1036 + 1037, 1038 + 1039, 1040 + 1041, 1042 + 1043, 1044 + 1045, 1046 + 1047, 1048 + 1049, 1050 + 1051, 1052 + 1053, 1054 + 1055, 1056 + 1057, 1058 + 1059, 1060 + 1061, 1062 + 1063, 1064 + 1065, 1066 + 1067, 1068 + 1069, 1070 + 1071, 1072 + 1073, 1074 + 1075, 1076 + 1077, 1078 + 1079, 1080 + 1081, 1082 + 1083, 1084 + 1085, 1086 + 1087, 1088 + 1089, 1090 + 1091, 1092 + 1093, 1094 + 1095, 1096 + 1097, 1098 + 1099, 1100 + 1101, 1102 + 1103, 1104 + 1105, 1106 + 1107, 1108 + 1109, 1110 + 1111, 1112 + 1113, 1114 + 1115, 1116 + 1117, 1118 + 1119, 1120 + 1121, 1122 + 1123, 1124 + 1125, 1126 + 1127, 1128 + 1129, 1130 + 1131, 1132 + 1133, 1134 + 1135, 1136 + 1137, 1138 + 1139, 1140 + 1141, 1142 + 1143, 1144 + 1145, 1146 + 1147, 1148 + 1149, 1150 + 1151, 1152 + 1153, 1154 + 1155, 1156 + 1157, 1158 + 1159, 1160 + 1161, 1162 + 1163, 1164 + 1165, 1166 + 1167, 1168 + 1169, 1170 + 1171, 1172 + 1173, 1174 + 1175, 1176 + 1177, 1178 + 1179, 1180 + 1181, 1182 + 1183, 1184 + 1185, 1186 + 1187, 1188 + 1189, 1190 + 1191, 1192 + 1193, 1194 + 1195, 1196 + 1197, 1198 + 1199, 1200 + 1201, 1202 + 1203, 1204 + 1205, 1206 + 1207, 1208 + 1209, 1210 + 1211, 1212 + 1213, 1214 + 1215, 1216 + 1217, 1218 + 1219, 1220 + 1221, 1222 + 1223, 1224 + 1225, 1226 + 1227, 1228 + 1229, 1230 + 1231, 1232 + 1233, 1234 + 1235, 1236 + 1237, 1238 + 1239, 1240 + 1241, 1242 + 1243, 1244 + 1245, 1246 + 1247, 1248 + 1249, 1250 + 1251, 1252 + 1253, 1254 + 1255, 1256 + 1257, 1258 + 1259, 1260 + 1261, 1262 + 1263, 1264 + 1265, 1266 + 1267, 1268 + 1269, 1270 + 1271, 1272 + 1273, 1274 + 1275, 1276 + 1277, 1278 + 1279, 1280 + 1281, 1282 + 1283, 1284 + 1285, 1286 + 1287, 1288 + 1289, 1290 + 1291, 1292 + 1293, 1294 + 1295, 1296 + 1297, 1298 + 1299, 1300 + 1301, 1302 + 1303, 1304 + 1305, 1306 + 1307, 1308 + 1309, 1310 + 1311, 1312 + 1313, 1314 + 1315, 1316 + 1317, 1318 + 1319, 1320 + 1321, 1322 + 1323, 1324 + 1325, 1326 + 1327, 1328 + 1329, 1330 + 1331, 1332 + 1333, 1334 + 1335, 1336 + 1337, 1338 + 1339, 1340 + 1341, 1342 + 1343, 1344 + 1345, 1346 + 1347, 1348 + 1349, 1350 + 1351, 1352 + 1353, 1354 + 1355, 1356 + 1357, 1358 + 1359, 1360 + 1361, 1362 + 1363, 1364 + 1365, 1366 + 1367, 1368 + 1369, 1370 + 1371, 1372 + 1373, 1374 + 1375, 1376 + 1377, 1378 + 1379, 1380 + 1381, 1382 + 1383, 1384 + 1385, 1386 + 1387, 1388 + 1389, 1390 + 1391, 1392 + 1393, 1394 + 1395, 1396 + 1397, 1398 + 1399, 1400 + 1401, 1402 + 1403, 1404 + 1405, 1406 + 1407, 1408 + 1409, 1410 + 1411, 1412 + 1413, 1414 + 1415, 1416 + 1417, 1418 + 1419, 1420 + 1421, 1422 + 1423, 1424 + 1425, 1426 + 1427, 1428 + 1429, 1430 + 1431, 1432 + 1433, 1434 + 1435, 1436 + 1437, 1438 + 1439, 1440 + 1441, 1442 + 1443, 1444 + 1445, 1446 + 1447, 1448 + 1449, 1450 + 1451, 1452 + 1453, 1454 + 1455, 1456 + 1457, 1458 + 1459, 1460 + 1461, 1462 + 1463, 1464 + 1465, 1466 + 1467, 1468 + 1469, 1470 + 1471, 1472 + 1473, 1474 + 1475, 1476 + 1477, 1478 + 1479, 1480 + 1481, 1482 + 1483, 1484 + 1485, 1486 + 1487, 1488 + 1489, 1490 + 1491, 1492 + 1493, 1494 + 1495, 1496 + 1497, 1498 + 1499, 1500 + 1501, 1502 + 1503, 1504 + 1505, 1506 + 1507, 1508 + 1509, 1510 + 1511, 1512 + 1513, 1514 + 1515, 1516 + 1517, 1518 + 1519, 1520 + 1521, 1522 + 1523, 1524 + 1525, 1526 + 1527, 1528 + 1529, 1530 + 1531, 1532 + 1533, 1534 + 1535, 1536 + 1537, 1538 + 1539, 1540 + 1541, 1542 + 1543, 1544 + 1545, 1546 + 1547, 1548 + 1549, 1550 + 1551, 1552 + 1553, 1554 + 1555, 1556 + 1557, 1558 + 1559, 1560 + 1561, 1562 + 1563, 1564 + 1565, 1566 + 1567, 1568 + 1569, 1570 + 1571, 1572 + 1573, 1574 + 1575, 1576 + 1577, 1578 + 1579, 1580 + 1581, 1582 + 1583, 1584 + 1585, 1586 + 1587, 1588 + 1589, 1590 + 1591, 1592 + 1593, 1594 + 1595, 1596 + 1597, 1598 + 1599, 1600 + 1601, 1602 + 1603, 1604 + 1605, 1606 + 1607, 1608 + 1609, 1610 + 1611, 1612 + 1613, 1614 + 1615, 1616 + 1617, 1618 + 1619, 1620 + 1621, 1622 + 1623, 1624 + 1625, 1626 + 1627, 1628 + 1629, 1630 + 1631, 1632 + 1633, 1634 + 1635, 1636 + 1637, 1638 + 1639, 1640 + 1641, 1642 + 1643, 1644 + 1645, 1646 + 1647, 1648 + 1649, 1650 + 1651, 1652 + 1653, 1654 + 1655, 1656 + 1657, 1658 + 1659, 1660 + 1661, 1662 + 1663, 1664 + 1665, 1666 + 1667, 1668 + 1669, 1670 + 1671, 1672 + 1673, 1674 + 1675, 1676 + 1677, 1678 + 1679, 1680 + 1681, 1682 + 1683, 1684 + 1685, 1686 + 1687, 1688 + 1689, 1690 + 1691, 1692 + 1693, 1694 + 1695, 1696 + 1697, 1698 + 1699, 1700 + 1701, 1702 + 1703, 1704 + 1705, 1706 + 1707, 1708 + 1709, 1710 + 1711, 1712 + 1713, 1714 + 1715, 1716 + 1717, 1718 + 1719, 1720 + 1721, 1722 + 1723, 1724 + 1725, 1726 + 1727, 1728 + 1729, 1730 + 1731, 1732 + 1733, 1734 + 1735, 1736 + 1737, 1738 + 1739, 1740 + 1741, 1742 + 1743, 1744 + 1745, 1746 + 1747, 1748 + 1749, 1750 + 1751, 1752 + 1753, 1754 + 1755, 1756 + 1757, 1758 + 1759, 1760 + 1761, 1762 + 1763, 1764 + 1765, 1766 + 1767, 1768 + 1769, 1770 + 1771, 1772 + 1773, 1774 + 1775, 1776 + 1777, 1778 + 1779, 1780 + 1781, 1782 + 1783, 1784 + 1785, 1786 + 1787, 1788 + 1789, 1790 + 1791, 1792 + 1793, 1794 + 1795, 1796 + 1797, 1798 + 1799, 1800 + 1801, 1802 + 1803, 1804 + 1805, 1806 + 1807, 1808 + 1809, 1810 + 1811, 1812 + 1813, 1814 + 1815, 1816 + 1817, 1818 + 1819, 1820 + 1821, 1822 + 1823, 1824 + 1825, 1826 + 1827, 1828 + 1829, 1830 + 1831, 1832 + 1833, 1834 + 1835, 1836 + 1837, 1838 + 1839, 1840 + 1841, 1842 + 1843, 1844 + 1845, 1846 + 1847, 1848 + 1849, 1850 + 1851, 1852 + 1853, 1854 + 1855, 1856 + 1857, 1858 + 1859, 1860 + 1861, 1862 + 1863, 1864 + 1865, 1866 + 1867, 1868 + 1869, 1870 + 1871, 1872 + 1873, 1874 + 1875, 1876 + 1877, 1878 + 1879, 1880 + 1881, 1882 + 1883, 1884 + 1885, 1886 + 1887, 1888 + 1889, 1890 + 1891, 1892 + 1893, 1894 + 1895, 1896 + 1897, 1898 + 1899, 1900 + 1901, 1902 + 1903, 1904 + 1905, 1906 + 1907, 1908 + 1909, 1910 + 1911, 1912 + 1913, 1914 + 1915, 1916 + 1917, 1918 + 1919, 1920 + 1921, 1922 + 1923, 1924 + 1925, 1926 + 1927, 1928 + 1929, 1930 + 1931, 1932 + 1933, 1934 + 1935, 1936 + 1937, 1938 + 1939, 1940 + 1941, 1942 + 1943, 1944 + 1945, 1946 + 1947, 1948 + 1949, 1950 + 1951, 1952 + 1953, 1954 + 1955, 1956 + 1957, 1958 + 1959, 1960 + 1961, 1962 + 1963, 1964 + 1965, 1966 + 1967, 1968 + 1969, 1970 + 1971, 1972 + 1973, 1974 + 1975, 1976 + 1977, 1978 + 1979, 1980 + 1981, 1982 + 1983, 1984 + 1985, 1986 + 1987, 1988 + 1989, 1990 + 1991, 1992 + 1993, 1994 + 1995, 1996 + 1997, 1998 + 1999, 2000 + 2001, 2002 + 2003, 2004 + 2005, 2006 + 2007, 2008 + 2009, 2010 + 2011, 2012 + 2013, 2014 + 2015, 2016 + 2017, 2018 + 2019, 2020 + 2021, 2022 + 2023, 2024 + 2025, 2026 + 2027, 2028 + 2029, 2030 + 2031, 2032 + 2033, 2034 + 2035, 2036 + 2037, 2038 + 2039, 2040 + 2041, 2042 + 2043, 2044 + 2045, 2046 + 2047, 2048 + 2049, 2050 + 2051, 2052 + 2053, 2054 + 2055, 2056 + 2057, 2058 + 2059, 2060 + 2061, 2062 + 2063, 2064 + 2065, 2066 + 2067, 2068 +



*coleosanthus*  
*not grandiflora* (Rusck)

1057

Leaf miner in cut-wick stuff. Platte Canyon Col. July 10, 1901.  
 Given a large brown blotch between epidermis at terminal  
 part (2/3 in) of leaf. Larva emerges and spins web  
 in 3-corned loop in one of the soft end leaves which  
 becomes wrinkled. Webbed within for cocoon.  
 1st small, flat, 1/2 in 2 black, entire pale. Cell tricarinate  
 in 2 or 3 lines, distinct separate. Body round, cylindrical  
 uniform robust aciculate and slightly retracted.  
 Head fl. brownish, feet normal. Pale yellow with  
 large conspicuous round black tubercles. Ia + Ib,  
 II + III, IV + V, VI a prominent large before & above spiracle.  
 VII a single brown black tubercle, VIII distinct in  
 lighter seg. Cervical a dark ellipse narrowing before  
 outwardly. The feet black, abd. like body. Spindle  
 small black tubercle (to Rusck) *Pinnia* Druce  
 sent July 11, 1901 sent 17390

1058

A *Sapromyza* in wolly wetland plant wetting the head  
 leaves in a loose tube with frass attached  
 through in with fine plant, probably from soldier.  
 A narrow shiny dark brown epidermis tubercles  
 head flat, vertex moderate. Cell large black shiny  
 entire the front edge of 2 pale tubercles. Body  
 gray like the ground leaves, mottled white  
 docting thickly on an olivaceous green ground.  
 Tubercles minute, black white ringed. Ia + Ib  
 separate, II + III more approximate, IV and V of  
 proximal, superposed, the upper the smaller mixed  
 with brown docting. Anal plate pale, whitish  
 not docted except by the blackish tubercles.  
 Dorsal and subdy. joining broadly pale segs  
 bands. The feet brown shaded. End segment  
 annulate the central ones nearly smooth.  
 (Wormy)

LXII *Leptomerus 5-linearis*

C 7424 1904

1059

Eggs of *Leptomerus* 17341 Platte Canyon Col. July 10, 1901.  
 laid loose, rolling. Elliptical one diameter less than  
 flattened, mac. etc. transverse square & rather dilated  
 the other rounded. About 12 straight 11 longitudinal ribs.  
 elevated with a fine wood change crest, ending  
 blunt at transverse compound into net at other end  
 cross striae fine, minute 11 a little raised forming cells  
 3 x as long as wide. placed transverse to length of egg.  
 Microscopical and covered net. a little bulging the edge  
 net. joining the ribs which form the edge of the transverse  
 striae being the boundary ridges. Uniform whitish yellow  
 65 x 5 x 5 mm. Seen through deep blue.

*Leptomerus* July 16 1st round pale erect radial tubercles  
 Red elongate, slender, normal, whitish dorsal bands dark  
 brown diffuse narrow at anal end, obsolete discal  
 one. a similar broad ventral band, dorsal feet 1, 10, anal  
 one pale. The feet partly brown. Tubercles & lines obscure.  
 sent July 20 4 1/2 rounded lobes erect, dull whitish. Spots  
 on face the vertex & sides brown conical tubercles. Slender  
 pale pencil point annulate. H. 1.50 heads of dark fangs  
 more the latter seg. subventral in darker. Trace of  
 a white edge to d. band and obscure line superposed.  
 sent July 24 H. 6 rounded oblique, a whitish, lobes more yellowish  
 brown dorsal in robust entire and in a darker stripe  
 on center of lobe. Red elongate pencil conical  
 d. line dark brown, composed of a fine ed line and a  
 large d one which under seg. confluent with the  
 sd ones. Feet dark green, slightly yellow along a  
 faint so brown dark joining brown seg spots. The  
 feet brown, and green dist. of 10 brown lined before.  
 sent July 26 H. 9 whitish a straight line of dark tubercles  
 on lobes and a dark pale line each side ventral  
 entire. Body moderate slender, straight. Cervical  
 seg 3x as long as wide. pencil numerous annulate  
 dorsal brown, subventral and d. d. line which is  
 dark brown a seg. yellowish & incisive, a sd black  
 shaded line, side & seg 5 or fold pale yellow; venter  
 broad black, pubescent, cut by a broken seg yellow  
 ed line. Feet pale, ab. seg. anted. Warts all  
 pubescent & shaded. Several appears dark  
 brown with yellow line on seg feet.



Shed pupa Hd 1.2 Rounded, slightly bilobed, 2 long, head oblique front, antennae large projecting, whitish on the vertex about median brown & a broad black mottled stripe on center of lobes, space between yellowish white like white space from mottled. Ant. black ringed body slender, round, head straight, fine acuminate. yellowish white, a broad dorsal d, widest on segs. brown lat, narrow strip & narrow sd from black. later, a broad seg. widest ventral band. sometimes pale or diluted medially. Lateral pubescent, not very definitely edged, more or less confluent. S-V fold than dorsal pale yellow. In some light brown, other very black marked other faint red-brown faint black. Tubercles & setae small obscure, spiracles black. The feet pale reddish, appressed, abd. appressed whitish ventral, dark brown within. Some had 1.4 (was shedding after the last pupa only later one. 1.6 was longer than 1.6 mm coloration same.)


Emerging Aug 8 in slight crown at ground Hd 1.3

Quilt Aug 23 1901 Cat 18033 *Synaldis emunctata* Gn

May 16 1901

Found 217 stages, last two 1.1 and 1.6 mm (found copy)

1060




Leaf common on upper side of Hill Creek, Platte Canon July 10 1901 (all gn) Larva seen feeding on leaf filled with black feces. Inducing to a broad rounded end, the last joint simply a white. Stems at margin a a vein. Emerges & a somewhat still at end 1 mm (T. B. Smith)

(Plant = *Cercocarpus parryi*)

Got a lot of live ones Salida Col. July 25

Probably = Cat. nos. 17903-4

1061 out get



Case cutter in Hill Creek with 1060. Larva on upper side stems from base of leaf & petiole widening from base the elliptical case cut out of the end. Larva a small part of larva. (T. B. Smith)

1st small flat, 2nd extended i.e. partly extended. rather wide below the small 1st joint. the wide ventral 1st (after case)

1062

Parasitic on Tobacco in 126 plant Platte Canon July 10. Webbing among the pointed leaves, from reticulated web in form of loose white tube. Hd slightly rounded apex is 2. mm, black shaded over lobes cut by the whitish line on each lobe, mottled, covering the body brown. Body widely shaped, nearly cylindrical tapering a little at each end. narrow depressed. Feet normal short, thin, very black, green shining seg. broadly acuminate the s-v fold dark. A straight, sharp edged white sd band below i-ii. cutting the large blackish lateral fine insected cth. and reaching end of anal feet. Tubercles not large but conspicuous, green i+ii, iii+iv, iv+v normal. Tubercles thin shows white the skin nearly transparent. Setae rather long, pale. all dead



1063

*Popillia leuconis* larvae on wild cherry & latter leaves  
Col. July 10 1901. Larva was all shiny brown  
with a white saddle.

Hd 2.0 Bristle, 8-V region narrowly cut end of 13  
white. 5d hump pointed on 2-4 and 12-13.

Small blue speckles 5d & lat in brown part.

Hd 3.3 shiny stone brown, erect blunt, working  
by 2. Body smooth except 5d points of 2 each

side stick out on 12. Even, a black band in  
incision 4-5 dusky edged yellow before. Abdomen  
yellow spots on 2 black rings the lower (1st)  
spot largest, blue purplish, black ring above  
purplish. A white saddle 6 lat - 9d, pointed  
behind blue dots small, black ringed. SV  
and feet whitish.

Head Eds Pap III 2 and see of lar  
character noted

1064A *Popillia* of 1064? in leaf (dead; see final page)1064 *Fraseria speciosa*

July spring Tater? in green pear flowered plant  
Golden (summit) Col., July 11, 1901. Skin a delicate  
silk-like about the whorled base of the leaves and  
out in a leaf, feeding on its edge & working. Not  
out on the ground. Hd round tilted apex to 2, oblique  
pale green, opening notched in center purplish  
outlines dull luteous. Body green, 3-annulata  
imperfect annulet narrow subventral luteous.  
Striped in purplish d. 5d, 2 lat & subshy all even  
spaced and about as wide as space. Venter slightly  
like whitish, unmarked. Shiny green, dotted to  
match the larva. Spinacles dark. Tubercles small  
black, 10 + 11, 12 + 13, 14 + 15 with serration, on abd  
16 + 17, unpaired upper ones. Line spotted &  
irregular edged. Seta brownish rather long.  
A(=A?) on same plant pine tree Col. Hd pale luteous  
ocelli & mouth black, body green, wiggly above, no marks

1065

Larva on 1064 plant, Golden Col. July 11 1901  
Hd 1.7 Shiny whitish, flatish before, oblique face.  
pale straw yellow brown mottled faintly on sides & round  
darker base of mottling beginning above the brown antennae  
and the pair joining at vertex - head cylindrical notched, the  
central seg moderately elongated. Feet distinct  
concolorous. Beakish straw yellow dorsal notch  
in brownish, a series of whitish brown spots found  
appearing a row of 6 subventral granules of hair.  
A moderate distinct, straight pale sd. line.  
Traces of a supraclypeal line the lat. space a single  
lineation pointed. Abdomen brown obsolete. Tubercles in-  
conspicuous concolorous; setae dark, moderately long  
Dead



1066

insects in 1064 plant, perhaps acacia but seem rather brightly colored. Golden Col. July 11, 1901. Hd small black. Body rather light yellow green. Vents black. A black irregular spot behind 1; a crescent continuous hind sd (below 11); bases of lat and 2 s-v black line. Cph + anal fl black. Vth small. Hair short, black & white mixed. Ld 2.0 sum more blackish in d. space.

July 17 Ld 3 Dorsum black w with yellow broken line. Side mottled black & yellow. Vent yellow mottled. Hair thin some long white, base gray s-v.

Next July 20 into a thorn very dark acacia like form. Another Salda (Mrs. Candell)

Artemesia argentea Burck says 1067 = 1060!!!  
(Gollard) 1067 Cercocarpus parvifolia  
plant 1060 & 1061  
Leaf remains on wolly back smooth leaf back with. Hill back but not that over the thin smooth back with mottled like glass. Golden Col. July 11, 1901



When at first very brown brown, smooth upper surface. The waxy all edge of leaf irregular rounded over a line by very pale line, from narrow cuticular lining  $\frac{2}{3}$  or more about edge of leaf. Same always and spin a bar much on back of leaf of a few strands. In the the pale a shiny visible light green; large and smooth brownish before. Laying behind the long black leg cases projecting far behind.

Next July 18 1901 Col 17520. End the more finally at Pine Grove, Col. July 19 1901 (see after 1051)

1068

Found in lettuce Riple, Col. July 11 1901 (A. H. Candell) Hd green, black dotted. Body blue green d. with lat and broad stay band of orange yellow. Several large low-conic black tubercles, more small ones and many hairs with not perceptible tubercles. Hair short, black, one shield.

1069

Plum on reddish Riple, Col. July 11 1901 (A. H. Candell) See Plum probably hassian (see above)

1070

Caradina eriposa

Found in sugar beets Riple, Col. July 11 1901 (A. H. Candell) Hd round, obovate apex 22, rounded. Intern with a few white flecks on surface of lobe w 2 ± Body cylindrical, equal, smooth, 12 segments enlarged. Shaded over a green cut by 3 radial white lines. Body green of olivaceous in darker line a straight sd line a shade paler than ground and a straight brown mottled one of same color but broadly green filled or as to appear cut in edges a blue (dark) blotch in dull red center of wings. Below then the lat. space is gray to black sharply dotted in whitish. Dorsum all dotted lined irregularly in green or blackish, bearing central defining a narrow obscure pale d. line a bright white spot in it which is at upper corner a subventral pale dotted mottled in whitish. Feet normal green, the brown shaded. Hair fine pale to dark changing in appearance & not feel but not the pattern of markings.  
Next July 12 1901 Col 17587

For chittenden  
Jan 4, 1902



1071

On fleshy leaved lichen plant with stem like little  
 branches. Sabida Col. June 12 1901 (A.W. Caudell)  
 One feeding. Hd rounded, slightly lobed, mesofacial  
 vertexing a white patch of hair spot on vertex of  
 face, vertex black, a close group. Body cylindrical, 3-  
 annulate, feet normal, annulate, slender. i+ii  
 ii+iii, iv+v in thorax; i+ii in line small, iii large,  
 vi+vi with a whole group of hairs; iv+v very small (in  
 1st annule) even cephalad of vii, well united, on small;  
 vi with about 5 hairs from approx. white tubercles; vii  
 normal. Pale green, each seg 5-13 on anterior half of iii  
 banded with purple brown a little dotted of green  
 color; on post half lat. slender banded 2-13 the darker  
 joining to a lat line. 5-v not colored. The feet  
 black ringed, all on pale, normal. Tubercles black  
 setae rather short, pale. Shield excentrically con-  
 colorous, whitish before, purplish spotted post.  
 Tarsus very obscurely lined in obscure, a  
 greatly channeled line. Wigger brachy (Dent)  
 more solid pages \*see 1100.

1072 *Ribes cereum*

Feeding on clammy purpley Bailey's Col. July 2 1901  
 Spine of the leaves a little; pupation in a webbed  
 in leaf. Hd rounded, smooth large projecting shiny  
 face, shiny faint brownish marked with black  
 in an aggregated patch. Body cylindrical, normal.  
 3 annulate, green, a more very light white sd  
 line. Shield large, faintly laticed. Tubercles  
 small, without plates, black is at it separate  
 ii+iii, iv+v. On abd iv+v but not in a common  
 shield. i-iii are white showing as black dot, the  
 rest smaller setae moderate, brownish feet all  
 pale.

Out July 18 1901 Cat 17521 *Selechia rubicella* Charvat

1073

Squaridae webbing together 2 leaves of aspen cotton-  
 wood, Bailey's Col. July 13 1901. Pupa leaves. Hd  
 elongate rounded, apex i+2, shiny brown, a light narrow  
 dark brown, blackish shade on side. Col large  
 hoodly black on edges, connexions with very small  
 the feet black. Body flattened, 3 annulate, Tarsi  
 shaped, subopaque whitish, unmarked, 8 gland  
 large, obscure tubercles. Tubercles large, con-  
 colorous but a little shiny, i+ii, ii+iii  
 iv+v, normal. Feet pale, normal. Setae moderate

(Tribalae)

1074 *Sarcobates thermophilus*

Leaf miners in the yellow flowered near Bailey's Col  
 July 13, 1901 under upper surface but found pushed



and below. Yarns escape and enter  
 over led by slit on under side.  
 Creation near a large lobed hollow  
 below upper epidermis. The opening  
 mine are long tortuous serpentine  
 in under side, not widening.  
 Hd flat rounded, broad lobed abducts,  
 sd, high reaching the vertex to angle,  
 smooth, later, translucent, venter black,  
 smooth brown; i+ii retracted in 2, 2 flattened  
 dorsal projecting at the side, without  
 distinct shield. Segs more equal, 4 and  
 5 a little smaller, tapering a little behind  
 13 moderate smaller, slender, divided  
 Body after a new cylindrical, subcylindrical

seg dented subannulate. Shiny pale greenish  
 yellow without marks. Setae more of obsolete  
 a few pale ones on the side. Feet 7-9 & 13 with  
 bristles of bristles directed backward, not in a  
 definite cluster. The feet moderate, directed downward  
 Out July 25 1901 Cat 17892



1075

Hosted on wild rose, (pinnulate stage shown) when young green collected by Mrs. Cundell at Golden. Mature at Pine Grove, Col. Hd 3-6 varices whitish thickly mottled reticulate with pale brown all over except a which is sharply pale. Body much enlarged. Pale carmine brown. Sclerotized reticulate mottled in darker. Dorsal line dark, geminate, arched, subobsolete carmine centered; sd line similar; lateral line a broad dark chocolate shade, touching spiracles short edged; reticulate, not strong; subdorsal line on shade pale, slightly carmine; subventral obsolete reticulate like dorsal. Tubercles slightly elevated white with black hair dot, a darker shade about i extending along ii, slightly oblique, wic joined across dorsum. iv below middle o. cth squaring brown, edged by sd line which is pale by contrast, not corrugated. Setae pale, few ds.

*Proconodinium*

*Proconodinium* *proconodinium* (1076) *Oncognodinium carolinianum* like PG but different Golden Col (Pine Grove) July 16, 1901. Large blotch mine under lower epidermis but the upper becomes a little mottled and yellow. Scales all brown on both sides. (To Beards) Hd flattened moderately, lobed, a broad sharp but narrowed to a rounded point at vertex o pale button mouth c entire brown. Body nearly cylindrical segs angulately manifest in shield. Tubercles setae both pale, somewhat developed several with even dorsally. The feet short oblique extended, abd 7-9, 13 sessile with a little bunch of barbs. Setae i ventral 2 oblique. All pale yellowish no marks. Legs subequal. Caster 1 abdomen a little enlarged. Aug 11 1911 Cat 17907

1077 *Seranium* sp

Leaf mine on wild geranium? Golden Col July 16. Large blotch mine at apex of lobes of leaf, epidermis then brown forming a narrow mine. Traces contained. Curve in shape then stop web like pale but transparent. Aug 23 Cat 17800



1078

Case cutters on sticky wild geranium, a sticky blotch in one corner of leaf through to both sides, from contained in one corner. Larva cut out pale yellow as seen in case. (To Beards)



1079

Blotch mine in wild geranium, Golden Col, July 16 1901. Large blotch, epidermis both brown, then white again forming a narrow hollow. Traces contained. Line to several larvae in a curve 1st feet, elongate  $\frac{1}{2}$  to 2. A high but o reaching natural notch pale testaceous, eyes a large black patch, jaws brown. Body slender, subcylindrical, subequal. Setae long, 13 rounded not sharp small, many cylindrical. Dorsum of c irregular corrugated. Skin shagreened granular. Pale yellowish white. The feet very long, long, distinct 5-jointed, abd. small 7-10, 13 no barbs. Setae pale rather robust, several with, tubercles obsolete segs not distinct blotched in white.





1080

rotund egg, perhaps *Cherax dimidiata* on aspen  
cottonwood. Baileys col. Slight on back of leaf.  
Hemispherical, base flat. Opaque white not shiny.  
Dorsal fine covered with small white granules.  
arranged obscurely in vertical line, a little denser  
above vertex which is narrowing side with a small  
central white space. D. 1.4 mm.

Hatched July 16 Hd. 65 um bilobed free, shining black the  
outline broad; lower part of lobes dulled brown.  
Red cylindrical normal, anal feet elevated, legs  
subcylindrical. White, shiny, 0.5th, anal. leg plate.  
The feet & tubercles shining black. Faint vitta broadly  
d. on 4, 5, 6 & 12 and distinct s-v reddish vitta blotch  
s-v the whole length. Tubercles normal i & ii and iii, sp  
iii larger, i a bit separate, iv behind spaced; no subp.  
Tubercles distinct, polished black. Setae pale obscure.  
12 slightly enlarged, i-ii & 13 ant. a a square; 11 rather weak.  
All patches, marked, ~~black~~ faint of leaf sitting by them.

Now July 18 Hd 1.2 erect, high, narrowing above, a low  
ventral notch, flatish tips. Pale luteous vertex  
of lobes narrow tipped in blackish brown ocellus dark.  
Rostr. cylindrical 12 slightly enlarged dorsally  
anal feet weak, approximated, but small. Whitish  
green mouth, a white set line. Subventer & feet  
brown deep vitta on anal area and narrowly  
lined with the color. The feet black. Tubercles  
larger but whitish almost conical with very  
inconspicuous. Legs irregularly acuminate. Setae  
invisible the striae a little elevated.

Shed July 21 Hd 1.6 pale greenish luteous, granulate dots  
darker sutures of mouth brown, suture of D and a cen-  
tral line also dark. Ocelli blackish. Body cylindric  
normal, 12 with a small dorsal hump. Setae  
yellowish shaded on dorsum and along stig. line.  
s-v blotched with brown, running down to outside  
of feet. Anal feet small and vitta kind. Spiracles  
small, black ringed. Legs subcylindrical, slightly shiny.  
6 with a very slight annular swelling.

Shed July 23 Hd 2.5 mm. high, flattened tips as at

Sides, vertex slightly notched. Pale green, blotches with  
dull red on the sides below and almost smooth, shading  
upward. Body cylindrical, 6 with a central slight  
collar elevation, 2 with a broad low hump. Setae  
space bottom spiracles of feet broadly marked in purple  
brown shading upward. Dorsum slightly, more dusky on  
hump and quite darkly on the elevation anterior of  
6. The feet and abd. outwardly dark purple brown.  
Spiracles black ringed. Tubercles slightly elevated, green.  
Anal feet small, used. Venter broad, pale green.  
The transverse purple line on 6 & 12 feet more distinct.  
Later dull vitta shades up, merging in 4, line, the purple  
dorsal ridges of 6 and 12 are slightly relieved & whitish.

Shed July 21 Hd 3.5 mm. higher & wider than 2, rounded  
flattened a front & side narrowed a little above  
and slightly bilobed, shiny, smooth. Yellowish green  
from D to vertex continuing, the D and side shaded  
in dark brown red; mouth dark red; oblique and  
slightly making the and shade reddish red, reddish  
greenish. Body cylindrical, 6 & 12 with low collar and  
dorsal humps; anal feet rounded, smooth small.  
are bluish. Feet somewhat equal, the anal feet  
a little smaller, used. Dorsum shaded in brown  
brown mixed with grayish, only a trace of green  
in the incision dorsally. Venter narrowly green.  
The feet and legs, feet of 7 and the other legs so,  
with a purple brown dark outwardly. Humps  
narrowly pale gray, spotted streaked in purple  
black. Tubercles whitish with black hair dots, a  
little elevated, distinct, redish. Spiracles large  
whitish, black ringed. The dark vitta on dorsum  
is an irregular black band from behind space on  
dorsum and an elongate spot between i and iii.  
2-5 is more reddish than 6-12 having red gray  
hump of 12 is reddish & the gray consists of trace  
of the collar marking a joint 7-11 more whitish  
as spiracles. Later 2-6 a little smaller & darker than  
rest of body, slightly indented and pale on side. Now all  
luteous except narrowly v with same marks but  
no distinct, different reddish tint, anal feet with a  
narrow red line. To J. July 21 Shed May 6 1902 Cat no  
N. grisea Stank (noting H.C.) 15108



1081

Leaf miner in alder (Pine Grove Col. July 18 1901).  
A large brown opaque blotch the  
leaf behind through. Brown both sides  
breaks easily. Piles contained.  
Several larvae in a mine.  
1st flattened, 6-8, 8 rounded reaching  
outward, whitish minute brown, pale  
black with a brown line from base  
down the outer edge. Head flattened  
gently, 2-3 large, 4-5 small. The  
gradually larger to middle & to  
base to 13. which is short narrow  
divided. Feet moderate, normal.  
Chalk, crochets is a neat elliptical with equal stem  
hooklets on both sides of 7-10, 13 on ant. side only.  
The feet reddish-brown and little pointed dorsal  
line & inwardly brownish tipped. Thorax short, green  
white, no marks. No prolegs 2 slightly elongated &  
tubercles obsolete, setae white, reddish, a few visible.

1082

Alysiid on fir wood (Epilobium) Pine Grove, Col. July 18  
1901. Almost centurion = A. longicornis. Whitish  
pale transversely black lined and with many  
segmented bands. and white 5-8 spots, head  
black long, vertex darker. Larva cut by a  
diffuse white setal band except a-12. Head white  
black spotted. Tubercles rounded, moderate  
and prominent through some a little pointed.  
Setae long, pale. pupa entered soft wood. made  
a bad pupa (opened May 9 1902). Only one larva  
found. Larva was A. ridingsii.



1083

Strophylid on red fruit (Mach. & green leaves) Pine Grove Col. July 18 1901. Larva seen to eat it.  
1st round, retraced, just hatched, later on pale. Head  
cylindrical normal, green, a small crimson dorsal  
line with a small oblique setal dash on 6, dark 5-12  
& white setal line 2 post-13 and ant a brown setal.  
The large ant. post on each seg. oblique, tubercles  
small, hairs single, i-ii separate, iv & v appressed.  
v and dorsal to iv. On thorax i+ii, ii+iii, iv+vv  
numerous fine setae & hairs, shorter & easily  
differentiated from the 10 ones, bulbous-tipped. These  
all white & short, no long ones in comparison.  
Ant July 25 1901 Cat 17893 Platylabus cosmodactyla Hbm

1084 Alysia haydeniana Pk

Egg by G. Luper 17522 Pine Grove Col. July 19 1901. Larva  
seen nothing. Head elliptical, narrow. Apical  
one directed a little less but no pectinate  
or truncation. About 14 longitudinal lines distinct  
into running to the ante-virgula and when  
they meet in a slightly crumpled reticulate at  
base, and then stop abruptly at a ridge which  
represents the edge of obsolete truncation. End  
reticulate. Ribs nearly straight dotted finely  
with 2 rows of lines. Cross striae fine and distinct  
not very distinct. Pale green. 4th seg. d. 9 in dif.  
green below 2 white obscure, measurable  
Hatched Aug 4 1st 35 rounded, mouth rather flat.  
Truncate dark brown, labrum & anterior subocular  
band cylindrical, rounded, moderately elongate. Black.  
2-4 and 10-12 look a trace purple and are brown  
yellowish. 6 and 7 brown transverse bands on post. base of seg.  
4-9 joined by a setal line that is wide next to post. band  
and nearly detached to ant. base of seg. a lat. curve  
apical line, reaching nearly whole length. Head  
black blotched on vertex & from 8 to fin a-v line.



2-4 & 10-15 marked on the yellowish with clouded  
 d. & sd purpl brown line. Col: and feet dusky  
 and slightly shaded. Feet dark, except tarsi. The 1st &  
 head head to look like on black horn. Feet 1-10  
 more pale esp. ventrally. Tubercles & setae obscure  
 concolorous on pale. (all with shiny springy ang.)  
Shed Aug 14 Hd .6 mm. Greatly <sup>late at 10-15</sup> more, colored, erect, feathery  
 minute d. dark brown, a disjunct subventral  
 white line on 1st to d. a large spot in d and apical  
 whitish, diffuse, setae pale. Body cylindrical, moderate  
 normal. Post 3/4 of segs 5-9 marked in purplish brown, joined  
 by a sd line which when it joins head in center of segs;  
 a faint line d. line, venter whitish, brown, and slightly  
 attenuated in whitish. Ant 3/4 of segs whitish, annulate and  
 slightly humped bulging out into d. & lat patches of the  
 distinct sd line 2-4 with white punctation. A 1st  
 line uniform, 9-10 segs brown, annulate in center  
 dorsal. 10-15 marked brown, dorsal between distinct  
 sd, lat & the white bands, subventral, a little  
 humped elevated. Feet brown, abd. whitish dotted  
Shed Aug 18 Hd .9 rounded yellow before slightly bilobed, erect  
 dark brown, a white dotted self is head over center, and  
 lat to d. which contains some white dots. Body moderate  
 cylindrical, normal, segs 5-9 irregularly annulate, and  
 slightly elongate. D. line whitish, midventral in <sup>late</sup> segs, and  
 shaded. sd dark brown, on 5-9 confluent of segs. Setae  
 moderately joined & covering all of lat space, brown in  
 thorax, confluent & paler on 10-15. Lat. space white  
 to <sup>late</sup> segs, narrowed to slender line continuing to segs.  
 Lines of ant. & venter, on sides below pale. Venter broad  
 dark brown, going oblong toward d. lat. Feet brown,  
 abd. whitish shaded ventrally. 2 d. dark brown as  
 also top of head plate. White shades slightly marked  
 1 end of annulate incision, also slightly humped, joined  
 on the sides. Tubercles & setae obscure.  
Shed Aug 24 Hd 1.3 Round, young 10-15 erect, brown black  
 white dotted, a broad joint subventral edged white  
 band on center of each seg, end of before only a dot, the  
 of ant. & epistoma white. Body as before, black brown, d. line  
 continuous, py. midventral white bands, near joint and by the fine annu-  
 late, contain black dots as in 10-15 respectively (all after 10-15)

1085 = 1049

Egg by ♀ Cooper 17533 Barn Swallow, Col Aug 19 1901  
 laid adherent. Elliptical, one side more convex  
 than other but no distinct flattening. One end  
 short, oblique truncate in a small space the  
 other convex perceptibly depressed. Ret. regular, in  
 longitudinal rows, rounded hexagonal, equal but  
 faint, subcylindrical. Pores white capitate except on  
 the concave side, going distinct white dots. Always  
 clear on the widest reticulate truncate. Setae  
 greenish a brown tint up to mic. end. 1 x .8 x .6 mm  
 thin dark shell and. (late with shiny & Polyommatus)  
Hatched Aug 25 Hd rounded, scarcely bilobed, pale brown.  
 Body moderate slender, normal, greenish white, a faint  
 distinct purpl brown sd line present on 1st, the joint  
 on 10-15 into a single dorsal. A distinct colored broad  
 ventral band. Feet brown except anal outst. Tubercles  
 and setae minute obscure.  
Shed Aug 28 Hd .5 whitish covered with reddish brown,  
 leaving <sup>late</sup> streaks of the ground color. Body small  
 whitish with dark brown bands as before, the dorsal  
 space narrow and grayish & a lat. line faintly  
 detected from sd. Feet pale outst. The feet dark.  
Shed Aug 1 Hd .9 heavily shaded with brown, marking as  
 before. It looks brown with a pale streak on the side  
 continuing the pale s-v fold of body. Body with marks of  
 1 still traceable but confused and obscure. Dorsal line  
 purplish brown, bifurc centrally, venter whitish broadly  
 shaded leaving the lat area broad pale greenish. s-v  
 slightly humped and all with obscure fine pale lines.  
 Smooth, cylindrical, moderate. On incision rather marked  
Shed Aug 5 Hd 1.3 rather square rounded, & slightly bilobed  
 Lat pale & depressed above, dented; mouth dark. Setae  
 blackish, faint fine thick, a white band on the side  
 behind eyes from ventral to sd fold of body. Body moderate  
 normal brownish the tubercles slightly annulate, pro-  
 nounced. Dark brown blackish, segs creating slight dark  
 marked intensity with obscure fine whitish sd & d  
 line. s-v fold rather more continuous whitish. The  
 venter faint and more distinct marked band &  
 pale. Feet dark, 9-10 pale without. Tubercles concolorous.



ii of 5 and 11 a little more prominent.

Aug 18 (Hd 1.7) as before, tubercles blackish, a and 4  
space each side larger, sides of dorsals behind  
grayish. Body somewhat elongate, stock like.  
ii of 5 and 11 elongate, papillous, outer d. tubercle  
prominent esp. ii of 11 which are conical pointed.  
Antennae large, curved, feet apparent, and feet  
marked d. elongate with large subventral spines.  
Back gray, dark, obscurely blotched and shaded.  
Rounded tubercles blackish, a gray white shade  
d. a 5 feet, less distinct in 6 & 7. 1st foot slightly  
yellowish, ventral obscurely lined; a white dot  
before the papillon of 5 and 11 orange blotched faintly.  
Scales obsolete, feet dark all dark, obscurely marked.  
Hd Sept 6 (Hd 2.2) full rounded, rounded a little above  
blotched, free, erect, mouth a appendages small.  
Gray, cinereous shaded in a broad band a patch on  
mouth, on sides below and a small ventral streak.  
Body moderate, robust, cylindrical, uniform, small  
feet large with large feet. ii of 5, 8, 9 and 12  
prominent, on 5 and 9 going high curve, on 8 and 12  
less strongly pronounced. Else smooth, the other  
tubercles obscurely prominent but narrow of back a  
visible hump not contrasted. Back like, mottled  
red brown, cinereous and black in an ill defined  
pattern. Prost. 1/3 of central eye bands cinereous  
as crown of thorax, 10-13 and feet; ant. parts of legs  
brown and reddish, lighter, even yellowish on 5 & 12  
Tubercles ii of 11 white tinged. Base of ii ventral  
on 5-10 spotted a cinereous white. a rather broad  
darker ventral shade. Dorsum another, a purplish  
indistinct a greenish d. line, but faintly.

1086

Epiphyg. Cooper 17527 (Pin Grove, Cal., July 19 1901)  
Head adherent elliptical on diameter considerably  
less rounded, rather narrow, both ends slightly rounded,  
about alike, with small tubercles, center a little  
constricted and one end slightly depressed about 1/4  
low raised ridge, 11 long, flattened, stopping at rim at  
microscopical end, reaching the other end into ribs.  
Many a double row of fine, but obscure, rounded, even  
shin fine obscure 11 rows raised. Pale whitish green.  
1.1 x .8 x .6 mm. Rim about microscopical flattened and  
distinct thin ribs, the end round smooth, slightly raised  
at rear rim. (late Polysommum)  
Watched July 28 (Hd rounded very slightly bilobed oblique  
very pale brown a little ventral streaked. Head  
moderate rounded, whitish, a broad straight dorsal  
pale purple-brown band sd 2-13, not quite reaching end  
the 1st separate, not touching at the middle of 13  
where they end. a similar broad pale brown v. band  
feet pale. ocelli black, antenna of moderate d. brown.  
(Dead Aug 4)

*Epiphygometra coloradensis* S.R. 17527-82



1087

Egg by ♀♀ *Brachybaena verruculata* 17523-4 Pin same col  
Jul 19 1901 Larv, 2, sphere base flat, obtuse, fine  
at the cell area, little hollowed. Dark yellow. D 1.5  
(Developed but dried without hatching)

1088A *Lithocolletis circumatella* Clem (March 1902)

1088 = *Tischeria cinchifelle* Cl & *Lithocolletis circumatella* Cl (Buck)

2 the transverse, projecting labrum  
is edged by 11 pairs of fine  
black dots, the narrow white  
dot. Petiole rather long and  
the base is (iv-v!)

cut 17953-4

off. dark orange or red, 121 feet  
1/13, a d i v. diff. from 1088  
shade, not quite as dark.

1088A

Upper surface. Larva large, 30 mm or more, flat, not ribbed or bent  
slightly, not prominent, several in a mine. Elliptical  
cocoon in mine. Larva strongly flattened, legs last project  
rounded, 2 large, 3 smaller than first enlarged to center &  
taper to end. D. i. v. plates whole length, subcircular, and  
conspicuous. Head black, spots for this & dark scars a 7-9  
D marks 2-4 just like V. feet scars 1st D, very pointed mouth  
widened, apical, project, many 10-15 & head sharp, broad above.  
Pale below, under mouth line black, white, purple dotted a red

1088B

Upper surface elongate narrow mine 30 x 5 mm  
not ribbed but corrugated from longitudinal  
the leaf bent after markedly. not prominent,  
silk line, no cocoon, pupa as in 1090.

1090A

With 1090 but different moth. Underside mine at  
the tip of a lobe smaller than 1090 but similar  
more strongly marked smooth, not ribbed, the  
leaf nearly flat, not strongly bent. Marked by  
the same as in 1090, mine. An elliptical cocoon  
within occupying nearly 1/2 the area of mine, white  
1090 mine was cream but pupate in silk line  
mine. Cocoon of 1090A as in 1088.

Reared Jul 29 1901 cut 17940 *Lithocolletis basistrigella*  
Clem

mine moderate 15 mm flat on leaf somewhat curved up,  
and in three ribbed, not prominent  
Larva elliptical, cream in mine  
and some whether this larva has been?

169

1088



Upper surface blotch mine on white  
oak Manhattan Col. Jul 21 1901.

1st flattened, elliptical, 4 narrow  
but sharp, rounded above, tapering, 4  
widened below, the 4 para apical  
minutae and. Minutely project  
long flattened narrow 2-4  
subequal, large 5-6 small  
7-13 enlarged a little to center &  
taper to end which 2 small.  
Thorax absent. abd on 7-10 & 13  
represented by a small elliptical  
area slightly raised, hornless  
thorax, no shield; last seta pale, long, 10 or 11 mm  
obsolete. 1st seta testaceous, brown on a distance, last  
min, body oblique, whitish. *Brachybaena* cut 17935

1089

Upper surface linear winding mine,  
widening on white oak with 1088  
(empty) was from a central black  
core. Larva emerges by end hole.



1090 = *Lithocolletis fitchella* Clem (March 1902)

1090 = *Lithocolletis basistrigella* Cl (Buck)

cut cut 17934

1090

Setae appear normal. vii  
13 on by base scattered.

Under surface blotch mine on white oak,  
Manhattan, Col. Jul 21 1901 Larva epidermis  
operated in a large rounded blotch, and  
little pointed tubule made to upper side.  
Becomes drawn forming a large narrow hollow  
1st flat, narrowly elliptical, the 1st 4 small, broad  
projecting. Body cylindrical but slightly flattened, legs  
subequal, thorax large, legs 3-4 rounded on last edge  
Two for legs well developed, with dorsal fold post.  
Whitish tubular, no shield, mouth edge of lobes  
thorax small brown, last feet short 7-9, 13 with small horn  
retained in white. Ocelli black, setae long fine pale from  
small conical tubule, developed all over but large flat



*Chamaenerion angustifolium*

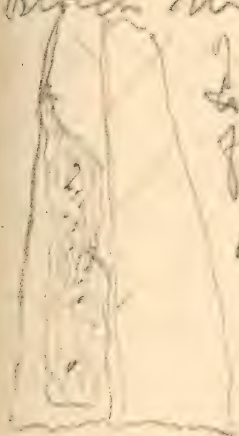
1091

*Alypsia* on *Epilobium* (not 1082) but on same plant  
Half Way House, above Manitou, Col., July 21, 1901.  
Hd rounded lobes, erect, white, thick covered with  
rather large black spots and a few small ones.  
A yellow shade over vertex of lobes and at  
base of antennae. Bod. cylindrical, normal,  
cylindrical, 12 slightly enlarged dorsally.  
Body white with a broad yellow diffuse shade  
5-8 (ii) and slightly (v) then former becoming dark  
orange on the hump on 12. Tubercles large black  
but some low, not elevated into cones. Many  
confused irregular circular black marks.  
Venter white s.v. spots at all, black lines on  
venter less heavily marked. Ab. feet black  
at base, feet colored ventrally. Thor. feet black.  
Setae long white. Black from a row of black  
line and dots, a heavy semicircle of line, wider  
at base just on segs and with a narrow under  
apex projecting but, more sparsely lined  
when the yellow is, sides between spots  
heavily marked; s.v. region strongly marked  
esp. above feet (see below)

Date May 4 1902 Cux no 18106

1092

Blotch mines in *Epilobium*, linear, along edge  
of leaf for some distance then ending  
in a large blotch to both surfaces, the  
face in scattered dots. Larva robust  
minutely marked with granulate brown  
col. (Aug 2 - to Bush). Half Way House, Col.



1093

Trilobed on aspen cottonwood Half Way House, Col.,  
July 21 1901. Found in I but shed coming down.  
Was all vivous, feet pale, a dorsal yellow patch  
on 4-5 and a spot, -9-10 and. Horn black. Tail ring  
Stage II. Hd rounded, erect, stippled lobes, dark brown brown.  
Bod. normal, all dark vivous brown, yellow rounded  
A patch on 4-5 and spot -9-10 and. Feet whitish,  
tails with 2 white rings. Setae short stiff black  
from large and inconspicuous concolorous tubercles.  
Tail and short black sd proth. brown spinose.  
(Dormant twice, the 22 time fatally.)  
Another Bailey's col. same, off shell, and late stage July 30  
1st 2.5 hours seen, A patch 2-4 on apr. horn. Large  
limited elliptical patch 5-11 and 11-13. all dark  
brown yellow edged, ventral one paler spotted  
End last stage Aug 4. Setae vivous. 1 pale.  
marked one dentate in position on edge and  
yellow orange spotted. Big ventral spots 11-13.  
Side grey, spot dark purplish brown; no white shading



1094

Miner on meadow sweet like moth. Abundant blotch in  
a web of leaf and under long minute web on  
leaf (To Bunch). Pine Grove, Cal. July 23, 1901

*Neillia malvacea* (Pollard)

1095

Big case cutter on dogwood, white  
beard *Coimus* Pine Grove, Cal.  
July 23, 1901 (To Bunch)

Large larva retained, flattened, 2 and last  
brown shaded, 5 small, rest flat,  
slight to faint white, a row of  
large, red black spots 5-11 ventrally

1096

*Suphura* on aspen cottonwood Pine Grove, Cal. July  
23, 1901 1st green, body green with broad dorsal  
yellow and band 2-13. Slight trace of reddish  
seg. spotting in dorsal space. (Wiley)

Setae iv & v distinct, narrower in line, & smaller, just  
below spiracle, 10 pairs. vi rather distinct, next dorsal  
obsolete. 173

Box Aug 8, 1901 Cat 17973

*Neallia malvacea* (Pollard)

1097

*Allionia myctaginea*

Leaf miner ? - Cat. nos 17998-9 on *Allionia* fleshy hard  
opposite leaved plant Salida Cal. July 25, 1901



Large blotch mine under upper epidermis but  
reaching nearly through. Surface fuzzy, brown  
faint greenish & a black line end of larva.  
1st small flat, ΔΔ reaching the hind margin  
rest Δ. Much smaller; pale brown, median  
of Δ brown, cells small black. Body short,  
flattened 2 smaller than 3, 4 & 5 equal,  
then slightly enlarged to midab abd & a  
little tapered to tail. Seg anapophyses pro-  
jecting lat. post. 13 small, double, 1st 2

abrupt, smaller than petiole, cep flattened  
moniliform. Thor. far small, slender, mid-vent  
antr. abd on 7-10 slender papillae with a small  
shaped enlargement at tip, a shape like the feet, no hump  
no feet at 13. Trache. pale yellow, white petiole d, v & head  
no hump.

1098 Aug 14, 1901 Cat 18053

Setae with #1097 Salida and Altos Cal July 25, 1901  
Oxygonophid shape under, flattened, elliptical.  
1st rounded, 1st 10 elongate & touching large membranous  
outlet Δ, oblong horn, yellow darker, cuticular  
anterior & hind 12 1st horn 13 3 or 4 from vent  
on 5-12 from vent to 13 a large diffuse vent. 1st  
vent V-shaped, lat oblique, s-v narrow oblique,  
horn 30 small, all large horn pale whitish  
many banded with short brown black tipped  
bristles and a few large pale hairs, seg 1 or 2 from  
2 white warts. Diffuse black d, lat. seg 1 s-v line  
all the other space between the warts shaded in  
pale brick red except between iv + v where white  
prevails. Feet on 7-10 & 13 normal short with  
a few hairs outwardly. Spiracles round pale,  
annular centrally. Head black (black band widened  
intensity with faint white (1) white edges the white stripe  
through center iv + v; a pale column band; lat black  
margin round, & white, a narrow column line; sty black  
lateral, broad white below; s-v black like dotted  
and distinct white ventral, the s-v line very faint, lines  
on 13 like ventral white, horn dark.



1099

Leaf miner and outside feeder with 1097-1098  
 Salida col. Jul 25 1901 Eats various shaped  
 blotch mines with a hole by which frass is  
 extruded also web up with delicate web  
 among terminal leaves. Frass in web. 1st small  
 apex is 2, angled, 2d tiny initial 2, small tubercle  
 much above, outer 2 brownish ocelli black, labrum  
 large. ia rib, ii 4 rib, iv + v thin, a abd, i dorsal h  
 iv + v remote, iv perceptibly dorsal, v normal, cth  
 from bisected in 2 ds, edges dotted & black tubercle  
 body slender, apical, segs subcylindrical and  
 almost equal, slightly tapering at ends. Not shiny  
 rather opaque pale green; tubercle small black  
 segs biconvex, s-v fold rounded permanent.  
 no anal. Pupa July 28 a flat green seed in delicate  
 web, looking brown, very margined like thin Florida  
 thrips. (Out Aug 4) Cat. no. 17958 *Lithorhynchus aluminosus*  
 ch

1100

On BB1071 plant Salida col. Jul 25 1901  
 Perhaps a var. of 1071. Similar habit of loose  
 web surrounded tube like against stem.  
 1st white with brown mottling, 2d short band  
 a vertex of each lobe and very short d.  
 Ant. 1a rib, ii a rib, iv + v many haired. On  
 abd i ii small, iii large, iv + v very short one small  
 and above, tan vi both several haired, one and  
 one post, vii several haired. Tetracaps. segs.  
 subequal feet normal. White mid, dorsal  
 with 5 yellow line the lowest on each side  
 black, obscure; a purplish brown blotchy  
 unperforated line, then an irregular double  
 obscure yellow line along iii and spiracle. s-v  
 fold yellowish, venter white dotted. Tubercle  
 black iii large. Shield concolorous with black  
 tubercle.

Out Aug 8 1903 Cat 17972

1101

*Neptenula* mines in green oak, Salida col  
 Jul 25 1901. Larvae slightly flattened  
 transparent pale green, shiny. 1st  
 transparent colorless. segs tapering  
 uniform, thickest behind the middle  
 (to Kusch)



1102

Selected? on scrub black oak, Salida J. D. Aug 7, 1901  
 Spins a delicate web over back of leaf and sprouts  
 below; frass in web. Larva not mounted, no tube.  
 Hd green, head flat, 2 narrow, 3 narrow, 4 small  
 black spot on ii, a large one on iii, two spots on lateral  
 above the small black ocelli; labrum whitish.  
 Body slender, somewhat ovoid flattened, normal.  
 Head green, hind with white in ringlets, small  
 edged like as with no spots. 6th 8th lat, i seg,  
 out twice of any line below that. Dorsum yellowish  
 folded. Shield uncorrupted and perfectly concolorous,  
 hind tubercle a setal cone on the obscure  
 the tubercles whitish with black dot, setae rather  
 long whitish. iv + v approximate but distantly  
 separate, v ant. and dorsal to iv. i and ii a line.  
 On this i abd, a black large dot on prespiracular  
 1/2 and on ii b. Spiracle round pale yellowish.  
 3b very slightly large a faint, a trace of the collar  
 structure but no marking.

Out pupa Sept 5 (mounted) Cat no 18054

Out June 3 1902 Cat no 18135







1105



On white oak and rose, or red oak.  
Bellport L.I. Aug 9, 1901. Leaf mostly  
folded over in two forms, all the folds  
pinkish streaked & yellowish, much white  
under. Fastened by silk all about edge  
and little holes eaten about the margins  
clean through. Larva within eat out the  
meaty part; green contained. Hd round, flattened top,  
oblique crest, 5 high to vertex 3, apex in 2. Pale yellow  
brownish squamous brown, cells distinct, black. Body  
rather thick, scarcely flattened. 2 large the size of  
equal, tapering out just to 13 which is rather broad  
divided. Segs thick 2 annulate. The sides are folded  
translucent brownish in streaks and here the red  
more opaque pale yellow. D. round brown, the upper part  
canal to just along side of a round, in palata in the  
annulet, along the back line and 3-4, as that the brown  
shines most in measure. Tubercles slender, rather  
long and pale. The feet distinct, rather short, black, all  
about, well developed on 7-9 & 13 only. i dorsal xii, iii  
normal, iv & v normal, small in line, not one strong.  
vi & vii rather normal, ii a bit, iv & v approximate. Later  
dark brownish brown strongly banded with pale  
whites cut by dorsal round. Bands segmentary.

1106

On all the oaks like 1103 but leaf and folded Bellport Aug.  
Sept 21 1901. A minute winding tortle on back of leaf  
of pine and oak, brown, green, fastened to leaf  
which is greenish, a diffuse pale web on the  
pale red, 2 with shield enlarged, head approx. erect, third  
and 2 pale greenish. On 3 ii long with black ring.  
iv & v approximate in line. Feet normal. all  
purplish red. (see bloom)

1107

Acetia from Mr. Fisher, Atlanta Ga, March 31 1902  
Hd 3 mm shiny black, spiracles whitish. Body black  
a series of d. elliptical pale yellow spots below ii, marked  
found in a slender line between i, a streak on 3-4  
small, almost minute, black, a pale yellow spot on summit  
ii large with large shiny black; iii-vi small all  
orange yellow; base of iii & iv shiny. Spiracles orange  
yellow. Hair all black short bristles, well bristled  
fls. feet black abd orange yellow black of body  
marked on velvety & grayish.

1108

Agryia inornata, about 100 larvae from C.W. Arnold  
Daytona, Fla. eating live oak, water oak and rose.  
very variable. Hds all dark coral red, even orange  
red. Spiracles a c-c 13 long, black. Tufts on  
5-8 large, knob-like white, gray, pale yellow  
or bright yellow, large, alike. Feet tubercles coral  
red. Tufts pale & dark orange red. Setae gray  
to spiracles, with a black d. band 9-12 & broken  
over on black by head. Most without any yellow  
band. Even have trace of c 3rd band, rarely faint  
distinct, broken by orange ii vent. Band present in  
in the palest larvae. Tufts v & vi yellow, sv  
region faint grayish, feet reddish reddish, vent  
pale yellowish. 3rd orange bipartite n.g. 5th feet  
more yellowish. Venter gray in dark area. C 3rd  
coral red.

377 cat Cat 18096-8



1109 =

Egg from Pg 18090-1 from Mrs. H.D. Merrick, New Brighton, Pa. Ellipsoidal, with flattened on 2 sides but somewhat rounded, one end slightly depressed the other rounded & truncate. Shiny pale yellow, nets obscurely granular. .6 x .5 x .3 mm. Hatched Apr 24 and turning same color but the pale yellow. Hd .5 rounded, slightly lobed, erect, feet, feel, pale brown. Mouth brown, ocelli black, separate. Body somewhat a narrow, feet distinct, all pale yellowish unmarked. Setae large, distinct, rather long & with hollow tips. Tubercles in middle. All joints well Apr 26, refusing other work. It is *Mezoleuca intermedia* already published. Mr. Merrick sent a second pair with eggs Cat 18101-2

1110

Egg by Pg 18103-4 *Oecilia glomeraria* from H.D. Merrick New Brighton, Pa. Taken Apr 25 1902: eggs laid Apr 27. Ellipsoidal, very strongly flattened on 2 sides, irregularly concave & hollowed but rounded. Immature slight rounded, other end depressed but not marked as whole egg is so flat. Dull whitish yellow from covered with large red spots confluent and covering much of surface. No nets, all fine granular, almost frosted, not shiny. .6 x .4 x .25 mm. Hatched May 3 rounded, shiny lobed apex & rounded d, ann, erect, glassy, light, 3 each high. Yellow pattern, eye black, mouth brown, head small, whitish, yellowish, dark, brownish, obscure, good faint outline, s-r feet shading to brownish. Not shiny, slightly conical, seg 6-8. Golden darker. Tubercles minute, inconspicuous, brownish. Setae very short, capitate, dark. Head feet extended laterally, anal feet rounded. No shields, no marks.

1111

1903

♀ *Litodonta hydromeli* Halv. from larva in Victoria Twp collected by Mrs. Schwan on *Bumelia lanuginosa* (Cat. no. 18107) laid infertile eggs May 6 1902. 2/3 spherical with flat base, dull whitish green, uniform. Ocelli not from, mostly regularly reticulate, the nets very slightly raised, hexagonal, with pores at the angles. Nothing like whitish dots, obscure. Surface is triple frosted. D. 1. mm H. .65 mm. Hd from crown 3 mm rounded d. higher than wide and narrowed about, obscurely bilobed. Schwan says the larva was attenuated behind, anal feet not raised, green marked with dark leaf green.



Sept 26, 1902

1112

*Ellida gelida* ♀ and eggs from Les. Krautwurm  
 Pittsburg Pa., laid Apr 29 1902. Two hinders.  
 Egg, (collected, red May 7)  $\frac{2}{3}$  spherical with flat base &  
 slight tendency to conical shape, ochraceous flesh  
 color or pale brown not shining, a round, trans-  
 versed luteous spot at vertex. Surface finely shag-  
 hexagonally reticulate, the nets smaller at ver-  
 tex. D. 1.1, height .7 mm. Hatch by whole side rather  
 Stage I. Hd rounded, lobed, higher than wide, mouth  
 pointed; erect; shining black, mouth & base of hump  
 or 4 mm. Body cylindrical normal, feet all used  
 but anal slender, 12 with a large echinoid hump  
 11 weak & smaller, else segs. subequal. Small narrow  
 trans cut, small anal pl, thin feet, lip plates &  
 tubercle shining black. Body translucent yellowish white  
 good showing green, a rounded d. patch on 3-10  
 & 12 between tubercle i-i & covering; of dull red  
 brown, shining like skin, faint on 3 and more on 11  
 covering the hump on 12. Lip plates but faint black.  
 Tubercle moderate, very distinct, rounded rather  
 pointed, black, normal, on subprimaries, 1st 1st  
 separate, 1st behind spiracle. Segs not very strongly  
 annulate. Tubercle i on 1st of hump enlarged, separate.  
 Sometimes one d. spots on 3 and 4. Setae stiff black  
 pointed. Two hatched tubercle not black d. spots  
 dull brown & diffuse, thick on 12 hump blood red.  
 1st & 11 separate, 2 setae approximate detached & annulate pale  
 One shed May 8 Hd .8 rounded quadrato, angled on lower side  
 flattened before, higher & wider than 2, d. small, vertex  
 broad shallowly notched; erect; dark smoky brown,  
 broad luteous on anterior, vertex of lobes blackish.  
 Body appressed, 12 with conical d. hump rising as  
 high as width of segment; feet moderate, anal short  
 the size of the others, 1st not extended backward. Segs  
 obscurely annulate but shining whitish with a  
 yellowish tint, translucent the food appearing green.  
 C.H. small, brownish smoky, d. patches 3-10 small  
 diffuse dull brownish red, the hump of 12 bright  
 red. Tubercles minute, concolorous obscure. Setae  
 small, slender, black, black. Feet all pale. It is

back of leaf with lid curved touching middle of body.  
 Side the feet tubercles, lid rising uniformly dark brown. d. spot  
 more distinct, rounded marked in full dots by i and ii. Body  
 the spots are uniform with a moniliform line, narrow  
 before, broken on 11 (38 larvae). Later there appears a broad  
 opaque white sd band.  
 Shed May 14 Hd 1.4 Higher & broader than 2, higher than wide  
 convex flattened before, slightly flattened toward vertex  
 rounded apically, shallowly notched at vertex, smooth  
 roundedly projecting, d. less than  $\frac{1}{2}$  to vertex. White  
 on each side m. suture above d, else shaded with  
 blackish luteous, vertex of lobes black, the palpi  
 conjoined more narrowly across vertex with  
 labrum pale. Body moderate, a little smaller behind  
 12 with a dorsal curved hump, not large, anal feet  
 slight, used. Segs 5-annulate. Whitish translucent  
 broad opaque white sd band, weakly contrasted.  
 Dorsal patches red brown, giving a compressed band 3-6  
 streaked or annulate, 6-10 & 12 dorsal bands spots  
 very slightly elevated. White prolegs of i and an annulate  
 groove on slight dot on 11 and 13 and, same of 6 & 7  
 streaked blackish a little on d. line. No shield.  
 Tubercles and setae obscure, concolorous, whitish  
 smooth head lid white with brown black dot at apex of  
 each lobe. Sd band yellowish, d. spots smaller, faint  
 fading out except for thin faint dots. d. line & under  
 shed May 14 Hd 2.5 mm. Head yellowish green on segs & then  
 a before, head oblique. Yellowish d. a narrow supra shield  
 pale on lobes, 5 and 6 space thin trace of a faint lateral  
 below eye greenish, a great elongated small black  
 patch on the anterior of each lobe; eyes in a small  
 black spot, tubercles whitish, pairs whitish, anterior  
 very small pale. Body slender cylindrical, 12 with a  
 slender triangular d. hump more oblique before than  
 behind, not as high as diam of segment. Segs obscurely  
 5-annulate the incisions depressed. Feet normal  
 equal resembling *Lophoceros*. No shields. Trans-  
 parent green, tubercles & d. venter white. An  
 opaque sd band widened dorsally in center of segs  
 to thick its fellow. White on edge, yellow below the  
 color darkest contrast on segs. Tip of hump dark red  
 at 6, red d. patches on 2 annulate a point 3-10 also.  
 a narrow straight line just below the head sd and a  
 faint fused with it, dorsum lat & irregularly thin  
 uniform pale yellow. Tubercles thin white, spots



Whitish. One row of tubercles below. Setae short whitish, the  
tubercles invisible. Later the d. spots faded to a faint  
violet shade but leaving a dark dot on i. In the  
pale band a narrow white line appeared S-V.  
Rost on vein body curved. Spinal the head crossed on  
middle of body & elevated. Same position as in all stages  
Yokes odd in the 1st larva.  
Stage May 25 Hdd 3.5. Rounded, higher than wide rather  
retreating, shallowly notched. Small, slightly depressed  
labrum invad at sides undulating with broad flange  
forming a rounded projecting mouth. Pale green,  
slightly opaque; yellow shaded outward at lobes &  
each side on antenna; a rounded black patch on outer  
unit of lobe, one eye, and covering distal by a pair of  
deeper pear than dist. Antennae small slender pale  
Body cylindrical rounded, 12 with a dorsal angled bulge  
forming a low subventral projection. 3 segments a  
little, else subequal 2 obsolete. Then the head.  
Segs coarcted 5-annulate, annulate 2 the highest. Three  
lucent whitish green the first very pale. Sd line opaque  
yellow, white on annulets 1-5 and on its upper edge.  
Widened dorsally on segs, reaching its full on 8 annulets  
on 6-11, widened lat. on 2 but on other segs straight on its  
lower edge. Three fine lateral lines (lower 2 at lat and  
superstij) pale yellow, straight, the upper in part confluent  
with 1 & 2 on annulets 1, then 3 separate & equidistant  
of the transverse ground color. A broken, shimmering wavy  
narrow, pale white line. Dorsal coarctate dots of  
dark red none or less distinct on 5-8, dorsal 7 i and  
on the slightly raised 2 annulets. A single spot on the  
subventral of the hump on 12. Tubercles invisible, setae  
minuscule, the dorsal ones dusky. In other the d.  
spots large & single on 3-10 & 12, in one all absent, even a lat.  
The dark ones have had many white flecks with green  
on face of lobes. Lins all yellow except edge of 1st  
next red spots; in one an incomplete line of dark red  
between 1st & lower sd line. D dark and spots large &  
filling all of dorsum except sd line. Another all shaded  
dike dark brown red crossing sd line at annulets 1 and  
forming great blotche over the sides.  
Stage May 26



whitish. No wrinkles below. Setae short whitish, the tubercles invisible. Later the d. spots faded to a faint vinous shade but leaving a dark dot in i. In the pale band a narrow white line appeared S-V. Rets on vein body curled & spread the head crossed in middle of body & elevated. Same position as in all stages. Gills red in thin lip larva.

Stage May 23 Hd 3.5. Rounded, higher than wide, vertex retreating, shallowly notched, a small, slightly depressed labrum inserted at sides, emarginate with rounded flange giving a rounded perijugal mouth. Pale green, slightly opaque, yellowish shaded outwardly at lobes & each side on. Outlines a rounded black patch on own unit of lobe, one eye, and covering distal by 1 pair of deep green than dist. Antennae small slender pale. Body cylindrical, normal, 12 with a dorsal winged hump, giving a low subventral projection, 3. Thorax a little, else subequal 2 visible, than the head. Segs conical 5-annulate, annulets 2 the highest. Thorax whitish green, the feet very pale. Sd line opaque yellow, white a annulets 1st and in its upper edge. Instead dorsally on seg, touching 3rd-10th on 3rd annulets on 6-11, widened lat. on 2 but on other segs straight in its lower edge. Three fine lateral lines, (lower 2nd lat. as superior) pale yellow, straight, the upper in part confluent with 1st a annulets 1, the 2 separate & square apices of the transverse ground color. A broken, somewhat wavy, narrow, pale wavy line. Dorsal annulets dots of dark red more or less distinct on 4-8, dorsal 9 i and on the slightly raised 2nd annulets. A single spot on the summit of the hump on 12. Tubercles invisible, setae numerous, the dorsal ones double. In others the d. spots large & single on 3-10 & 12, in one all absent, even a 12. The dark ones have had many white granules with fainter on face of lobes. Loin all yellow except edge of 1st vent red spot; in one an incomplete line of dark red between 2nd & lower 2nd line. D dark red spots large & filling all of dorsum except 2nd line. Another all shaded with dark vinous red crossing 1st line at annulets 1 and forming great blotches over the sides.

Stage May 26

1113

Egg by ♀♀ *Theraps ferruginea* from H.S. Williams Rockledge Fla. taken and laying May 16, 1902. Elliptical the narrow diameter only slightly flattened in a small arc on the middle of the sides, truncation forming a decided thin but elevated central depression and rounded, almost like the other end. Surface smooth except for very fine, rounded hexagonal moderate distinct reticulation all over surface, becoming a little larger at the anteroventral corner end. Minute pores at angles show whitish in shadow.  $9 \times 6 \times 5$ . Oviclusters green, shining. Turning dull reddish.

Hatched May 31 Hd rounded bilobed broad face, rather large mouth pointed; dull dark brown, darker in the anterior, lighter on face of lobes; eyes black, 3 mm. Body cylindrical, rounded, elongate, feet normal. Slender, all over rather long segs slightly enlarged centrally. Slightly white, a shaded dark gray band a band of narrowness in incision and about 1st hump. A subgenital dentation, narrower & more distinct 5th lat. furrow at ends but continuous narrow and confluent in incisions. A circular 5-8 band generated but seg. maculately joined. A series of large seg. ventral elongated spots on higher segs feet all pale. No spots. Setae short stiff whitish tubercles imperceptible. Segs showing rather numerous annulets. (All white save joint).

Stage May 6 Hd .5 mm rounded lobes large, full but not bulging before, a little higher than wide, white, a faint gray shade over vertex, tubercles dark as also outlines of 2 and ocelli. Head reddish, normal, whitish with a dark gray tint; d. space broad pale containing black tubercles; and ii, broad & a little black. Black lat band broken into dashes. A more continuous and gray S-V line. Feet and ventral pale, bottom dark. Setae short pale. Segs joining fine annulets. In which mainly 1st faint ground appearing being light whitish gray. Stage June 2 Hd .9 mm rounded bilobed moderate, white very faintly greenish reticulate, small black dots on the tubercles and at apex of 4. Body moderate segs joined irregularly annulets, grayish white



as *feloidae*

See Payson & H  
1900, but others

xxxx

*Thomomys* <sup>more</sup> <sup>is an</sup>  
lines 6-8, 2 col, for the first

*Fiscellaria*

*Monodonta* <sup>is</sup> <sup>sp.</sup>

The *Monodonta* has been  
much confused.

It is apparently

the one referred to

by Packard

in 18



d. line are translucent; black dots on i and trace of the green line as rather minute dots and tubercles but i separate and giving well traceable lines. sd and s-v lines rather white than general color. feet all pale. Setae obscure. Tubercles black marked.

Thud Jan 20 Hd 1.3 Same face a little more black dotted and in general rather quite thickly. Sides faint purplish between the broken black line including a hind lat shade. D. space white, center with a broken line. Tubercles black (intercalated)

July 27 by 1.9 mm rounded, low bilobed, thick; white tubercles, blackish i in sin, distinct black spot on tubercles; scales black. Body rather slender moderately elongate. Head white, ground pale luteous, with straight white sd line and ~~dark~~ irregular sin in d. sp marking a shining black edged; a waved supra-ocular line, black edged; irregular white a-v line not distinctly edged + black s-v line straight like sd black a brown edged. Tubercles small, black, feet pale. Line not contrasted with ground color being more same shade. General appearance very light black gray. Spiracles black.

On Thud Jan 14 Hd 2.3 Same s-v marked with brown edges, lat. more mostly black edged. July 24 I note that there is obviously the last stage as the ground color is brown than before the white line is more contrasted. The green line is quite white. (Describe blow and Koebele; specimen)

Thud Spring Aug 3. On Sept 1 Catana 18470 Hd rounded bilobed, rounded a little above. Body pale before. Glabrous white ground marked with light brownish tubercles. Setae distinct round black dots. Body small, white. Ground color a brownish indistinct d. line and s-v line. Setae black. Tubercles marked by small black dots. D. sp. reddish brown center and irregular white line all edged by a circled brown line; a broad pale white sd line; lat. sp. whitish. Ground being filled centering a lat irregular whitish line all edged by a circled black line more or less incised + broken. I have about 200 by 1.5 mm. s-v sp. brown edged by a shining black line; a white s-v line; pedicel of whitish edged by brown line; a white v line centering sep gray spot. Feet pale brown edged black dotted. Sp. 1.5 mm. Setae small dark.

1114

Blow name of *Selechia basquella* Chas. from Thud for description. On *Cassia chamaecrista*, D.C. Hd rounded, bilobed, full, oblique and retracted mouth projecting the labium + appendages prominent. Clasper large, s. antennae small. Shiny black. Labium + appendages pale. W. 6 mm. Body cylindrical round 2-13 and 12-13 tapering. Thor. feet distinct, the joints black rings; abd. ones slender rather small, round. The cercus is a corniculate rod about the small circular plate. C-sh large. D-shary black cut by a fine faint white d line joints 2 + 3 distinct dark brown except the neck a point of 1 + 2 shaded; 3 in the recess in front and in a broad band in post 1/3 of the same dark brown extending even to the center. Rest of body whitish, brownish, greenish from blood. Tubercles small round black that distinct, bearing short stiff dark setae. On Thud 50 a 1 + 2 separate, ii a + ii b, iv + v. On 3 the tubercles plates of ii, ii a + ii b and iv + v are large & black, but on 3 they are small and the paired tubercles stand separate though contiguous. On 4 posteriorly the preapical a + v tubercles are large & black, dorsal and vent to ii, iii near also spiracle, iv + v contiguous in line. vi s-v post, viii 3 contiguous tubercles in and by base, viii on inner by base. Spiracles small, black rings and shaded pale brown, distinct. Anal feet with a brownish outer shield. The white line thus formed in the anterior part of joint 3 appears irregular edged and branching.



1115

White oak *Apatela*. Dls June 2 1902 lhd 1.6 round lobes smooth whitish greenish brown reticulate; hairs distinct white, blackish toward summit. Body whitish brown. Antennae all long, pedicel into smooth columnar except on 11. 3 on each side. Cth i-iii and ii a, i-iii of abd, some of the rest slightly pedicelated, enlarged at tip with terminal dark hair and crown of pale hair tubes occasionally a hair on the dorsal. All pale tubercles pale orange tipped. Looks more fuzzy, more sheaf hairs than I remember 15A. Shed June 5 lhd 2.5 Same tubercles long fuzzy. Sides whitish, tubercles whitish faint. Tubercles orange tipped.

### *Exornia galleriella* Chrenk

1116 Out Apr 21 1903 Cal 18493

Larva on *Phacelia* *dentata* Plummer's Is. Ind. (near H.S. Barber) June 1 1902. Free feeding - no web. Hd round apex retracted. Shiny, black a greenish white mark on upper 2/3 and rounded spot each side, separated by black pattern; epistoma & basal antennal joint pale. W 1.2 Body cylindrical rounded and very slightly tapering, seg. increase distinct, weak 2-annulate. Whitish of age a diffuse yellow of head & lat. region. Lateral yellow shaded; no shield; 2 & 3 5d blotched in smoky black joining d a 3; 4-5 ant banded in velvety smoky black solidly except for d. 1 lat. ant notch on 2 pa rounded d. black spot & smaller one in incisure; a broad dark gray 5d shade diffuse above, sharp below, shading a thick arm across spiracle oblique post. Light 5d gray markings heavier on 2-5; anal shield orange. Tubercles in large round velvety black spots, 1 dorsal - ant to ii, iv-v vii of 3 setae on ant leg base on pale ground. On the latit, ii-vii, 10+8. Thorax black. Setae long black and very slender. Male.

### Mosquitoes Center Harbor, N.H. (1902)

#1. Larva in woods in swampy spring in old barrel June 20 water clear and cold. Hd large, rather broad rounded before and narrower, broad behind, eyes transverse black, antennae long, with distinct tufts at outer 1/3 white, the tip and base black, broad blackish. Mouth bristles well expanded, dark. Thorax and abd. stained with brown, normal, hair tufts subequal, smaller behind, 10 & 2 abd seg. with tufts, other single haired laterally. Tube rather long, slender, tapering, not fraying last seg. 2x1, ringed, end bristly and double d tufts normal, moderate. Anal finger short as long as segment, slender, inconspicuous. lhd 1.4 ± Out before July 7 ♂

also from #2 for *Tanyptera hirtipennis* Loew (1902) and *Chironomus snowgum* Will.

#2 With No. 1 same place. Just like it. The larvae are quite brown shaded, no distinct markings, antennae strongly and very broadly white banded, anal tube long. Out before July 7 ♀ (Shed disintegrated)

Calc. .28 .47 .78 1.3  $\frac{6}{10}$ 

July 7 and on left lhd 1.4 antenna white banded tube long #3 Seven little larvae with nos 1 and 2 in stream pool and an adjoining one. Water full of sticks and rather dirty though clear. yellowish in turbidities. Collected June 20. Shed June 21 (sh lhd 25 mm) sh lhd mean black, dark brown antenna dark, broad, jointed centring. New lhd ± 5.5 head large, brown, darker on vertex above eyes, antennae long with tufts at outer 1/3 mean black strongly post. Body cylindrical, equal, thorax rounded, large, robust. Thorax shape 3rd and abdomen except before tube dark brown, the accepted part white. Tube long slender tapering, anal seg. moderate, finger slender small and hair normal. More can for June 21 lhd 1.8 mostly brown shaded, smooth of thorax whitish. Hd pale; long antennae black at base and tip, broadly pale centrally, not yet white. Brown shading at outer 1/3 seg. Just part of thor. and along ab. canal. Hair all black, simple long on tho. 2 & 6 ant abd segs. other shorter. Tube long, finger slender, seg. normal. Tube all brown (all stages) and head a row of little papillae. More in another pool full of rotten leaves and many white worms lhd 5, 8, 1.3 ± the latter with white banded antennae. Shed June 23 lhd 1.8 ± ant. with tufts at outer 1/3 of the rounded almost white; tube slender tapering. Tube with double double curved tufts beyond. Comb of 8th seg. 10th row wide in post







1117

Egg by ♀ Looper 18158 Centre Harbor N.H., laid June 21-22 1902  
 Elliptical, one extremity much less than the other, de-  
 pressed and rounded, slightly depressed, other end strongly  
 and strongly truncate more or less obliquely. Reticu-  
 lation, regular, hexagonal, broad, forming prominent  
 rounded shallow pits between, enlarged in straight line  
 on  $\frac{2}{3}$  of egg toward truncated end, simply reticulate on  
 other  $\frac{1}{3}$ . Truncation likewise reticulate but smooth  
 and without lines, the edge rounded. Corners of pits, having  
 white dots for the pores, raised and on the truncation  
 more conspicuous than the pits.  $9 \times 5 \times 4$  mm. Pale  
 yellow, slightly shining, under simple lens looks smooth  
 granular from the pits. Laid adherent, under objects.  
 Turned red at the truncate end.  
 Hatched white at Citharus. zella gave me good food)



1118

Eggs by ♀ Noctuid 18192 Center Harbor N.H., June 23 1902  
Spherical, the base scarcely flattened, slightly longer than  
wide, very white. About 40 into diametrically arranged  
at ends mostly by becoming confluent in pairs at  
terminal  $\frac{1}{3}$  stopping at midlength which is slightly deflexed  
Rits low, closely beaded, no cross-striae. Shape a little  
irregular and broad end often considerably obliquely  
flattened by pressure of laying. Diam. 6 mm  
stained white at Pithology. At winds Hds. 3 with C-sh black  
slightly bluish along body sides. Large, rather strongly rounded  
post. 12 slightly flattened, a small black area plate. Body  
translucent, green from food (pupae) bodies with brown more  
so post. than ant. end being slightly articulated, green  
tubercles very small, black, rounded, many in number to  
the legs except on 12. Setae small obscure. Feet normal  
short, the ones faintly blackish.

July 14 Hds. 5 rounded shiny black. Body translucent 12 slightly  
enlarged all dorsal blackish rounded. Minid and  
large tubercles black. Setae distinct, pale at tips.

July 15 Hds. 6 Hardly distinct shiny black. Body darkish reddish  
with greenish tinge from shaded areas the caudal  
of legs. Small, black, feet normal. Setae distinct blackish.  
Tubercles large trace of a broken whitish d. line most  
distinct anteriorly, 12 slightly enlarged i-ii in  
a square. Wide in body of jaw all dirty and wet.

July 19 Hds. 1.0 Dark brown, shiny, apex ends a C-sh and  
and 12 black. Minid quadrate with a pale transverse  
line on post. edge. Body shapeless, dull black, greenish over  
thorax and pale 3-4. 12 slightly enlarged with a sd  
wedge-shaped dilatation, the joint post. Tubercles large  
blackish a black, setae coarse and distinct. Is large  
than the black spiracle, the seta also visible. Joint line  
of a many sd lines continuing the dilatation of joint 12.

July 25 Hds. 1.3 rounded apex a 12 shiny brown black.  
Antennae and sides dotted pale brownish. C-sh shiny  
black, marked by many longitudinal lines but with  
a broad pale brownish line passing on post. side.  
Small pt. large pale centrally mottled with dusky,  
black at tip. Unispiral dorsal area edged by a  
rather broad diffuse pale pinkish band, scalloped  
outward at tip, inward at midlength broadened on 12  
on the slight hump. Color dark gray. Brown, not shiny

the skin wrinkled shagreened. Color uniform in d.  
space & elsewhere mottled dotted in pale. Not  
the pale subdorsals near the edges of a hind pale  
d. space not yet defined. Tubercles large black.  
Jointed but unispiral, feet, is above center of spiracle  
seton dark, each stage.

July 31 Hds. 2.5 Dark, shiny, fine obscure dark re-  
transverse in a brown ground, areas about 1 on ii  
pale. Setae pale, stiff. C-sh black, post  $\frac{1}{3}$  pinkish brown.  
slightly mottled, contrasted. A faint dissecting line  
and slightly flattened, 12 obscure enlarged. D. space  
broadly pale, pinkish white, reddish, mottled &  
streaked in purplish brown, a darker central shade  
D space widened on legs esp. on 12 when it becomes  
finely obscure. Setae pinkish brown, mottled dotted  
in whitish. 3-4 & 12 dotted olivaceous. Anal plate  
broadly pinkish, black on lat. edges. Tubercles large  
black, jointed, is above middle of spiracle. Spiracle  
black, feet normal, head, feet post. black, small.  
anteriorly situated.



1119

All black Phycitid on Birch Centre Harbor N.H. June 24 1902. Army of spms leaves the frons united, with a mean spherical ball. On the small-leaved white birch. Prob. *Acrobasis betulella* described on my Colorado paper (BB989), singly or in pairs probably from a cone at first as the hells and tail like prolongation. Larva brown.  
 Out July 9 1902 Cat no 18289

1120

Phycitid common on Birch June 24 1902. Like 1119 but the larva more fusiform shaped. The larva makes a long tube often bent and compressed when several together ending in a broad funnel which is fastened into a ball at maturity. Leaves webbed around. Larva. Hd rounded, scarred, bilobed, apex retracted, shagreened, red brown. Antennae and palpi black ringed w 1.8 mm distance white. Cth brown, tinged w pale, black flecked at the tubercles. Anal pl. & the feet black. Body cylindrical, tapering a little at the ends, not shiny grayish black, a dorsal band of reddish ochraceous delimitation variable in development, beginning at the anterior end, varying from a trace to a distinct band the whole length, broken in the incision by the ground color. A similar broader but even more diffuse subdorsal band, continuous w broken in the center of segments. Abd. feet short normal, the crochets in ellipse. Tubercle small black, iv & v in line closely approximate, vii on and by base. ia+it, ii+iii (forming a large tubercle on 3 only), iv+v on thorax; shield complete other prothoracic tubercle large, partly brown.  
 Out July 15 1902 Cat no 18361

1121

*Acrobasis sensilis*  
 Phycitid? welling up from of low *Acrobasis* form Centre Harbor N.H. June 25. Hd. 1.4 elongate bilobed, a high pale brownish brown, smooth brown, ocelli large & black, prominent. Body short, contracted, tapering at ends all transparent and waxy white from fat all over, no marks. Feet slender normal. Cth transparent colorless, complete ia+it, ii+iii, iv+v a large shield, colorless, transparent ia+it and ii+iii complete, complete on 3, separate on 4. On abd the plates are many of white visible in oblique light as shiny, normal, iv+v, hair tubercle brown. Sprinkle pale brown brown, rounded narrowly, large oval anal feet shiny. Setae distinct brown-black. Ends of whole found, from winter.  
 Out July 9 Centre 18307

1122

Eggs by *Pseudanaphora arcuella* 18266 Washington D.C. laid July 2-5. Laid loose, pale yellow, very small for moth. Elliptical, rounded, slightly quadrate, apical, one diameter distinctly less than the other, a slight broad arcuate truncation at the micropylar end. 14 next, narrow slightly raised ribs run lengthwise, compressed into broad nets. A micropylar disk, between these are fine, very obscure cross striae dividing the space into parallelograms about 4 times as wide as long. Size .35" x .3 mm. Ground dark brown, slightly shiny. Body shrunken distorted July 16.



middle!

mesquite (cont. from p 191)

4th Stage I collected July 8, same post, isolated to see if it is no 3 or no 4. Hd. longer than wide rounded, almost elliptical, eyes brownish black rounded, numerous uniform closely decussate setae, tuft at outer  $\frac{1}{2}$  rather long, but no change in size of joint. Shaft pale brown, but blackish at base long. Body rounded, thorax flattened glabrous. Ab. subcylindrical, base simple. Subequal as in other stages. Tube about  $4 \times 1$ , tapering or a little conical at all brown impunctate. Anal seg. with d. plate no paired d. tuft but no ventral bristles. Tergites moderate, tapered. Comb & single row. Brown shaded, incisions, prothorax and 1st abd. seg. whitish transverse. Found July 8 PM. Hd. 5 = no 3. Found July 10. Hd. 8. Hd. 1.2 July 15 regular territories. Pupa July 16 but pupa white.

Note No ~~1=2=3~~ 3=4=7=10  
No 4=8=9

no 4-8=9 *Culex canadensis*  
is less easily disturbed and retreats more quietly to the surface  
than 4. When down it remains quiet while it feeds on the  
bottom and surface of leaves

#11 In Cinophylla pool Not larger than wide, rounded apically  
various, 1st to 4th segs. light rounded transverse, antennae  
uniform blackish, tips at middle, mostly not reaching.  
Body covered, tube tapering infuscated, conical single, anal seg.  
1st to 3rd in July 11 Not 5' pale, antennae slender blackish tipped 20  
after third tube long slender infuscated. Anal seg. flattened  
ventral black (pencil). Whitish translucent, at anal dark  
July 11 Not 6' Antennae broad whitish ringed. Seem to be  
No 3 Not quite pale, many isolated spots for at. anal.  
July 11 Not 3' in same pool, lvs 5, 5, 1.2 mm. #11A. The white rings?  
with a narrow dark  $\frac{1}{2}$ ; eye reddish black; face, tube & anal  
black, everything else pale. [But brief July 11] Not 1.5 July 15' at head  
apexish rounded wide than long, pale translucent, eyes black,  
four-segmented antennae long, smaller at tip & beyond the base, whitish  
black at base and tip. Thorax glabrous, lobate and subcylindrical  
finely. Noton, with small small hair tips. d. & lat. segs. 1st  
with small lat. hairs, abd with lat. hairs on 6 segs. Anal equal  
and all over dark & haired, dorsal on 7 & 8 segs. Tube long  
slender, almost conical, pale brown, tips black. Anal seg. slender  
round, normal hump. Sings long slender. July 11 10' 10' 10' 10' 10'  
black & ring pale brown. July 11 10' 10' 10' 10' 10'

#12 Anopheles in rain water findable in place where ground had been dug out the mud roads. Puddle clear in muddy bottom, a slight trace of algae. Hb. lightly marked with brown in fall, very little white. Ant. 12 seg. 12 seg. 12 seg. Puddle dried up H. ant. 12 seg. A. punctatus curvus

HA  
July 5  
x July 18

HA  
July 2  
Aug 10  
Sept 10



#13 Little larvae wriggling at bottom of rain pool on a rock. Pupae floating stiff, with air tubes. (see slide)

#14 Big *canadensis* collected from spring pool July 14. Tube about  $2\frac{1}{2} \times 1$  cone fusiform brown. Dorsal plates black, anal seg. distinct at least d. with tufts & v. brush. Ant. with tufts at middle, slender white on basal half, dark at outer half. Mesothorax has 2 patches of hair slightly subequal, less post. Thorax looks hairy but all dissolved in brown. Hot pale brown legs black. Pupae July 16 but July 19 *Culex canadensis*

#15 Ten *Culex* larvae in a closed algae pool on little islands in the lake with one large dark amphipod. Hd 1.2 like *terrestris* but antennae absent! Out July 28. Seven with legs & dark brown like #5. Two with legs & dark brown except this is faint; one with red eyes antennae black, narrowly pale in middle. Tufts well outward. Tube long slender. Amphipod looks dark but is filled with green algae and is small, pale with white dotted d. stripe. Hd almost solidly brown black, of the sides pale; antennae white with black tip. Pupae July 19 but Jan 23 *quadrifasciatus*

#16-22 None in pool covered with sticks on wooded island water clear and cold, probably part of lake.

#16 Hd. & nearly circular pale brown legs transparent & black. antennae slender all blackish. Tufts black at outer & thin & small. Body brown shaded, also brown slight after 2 segs. Tube long about  $5 \times 1$  rounded slender, scarcely tapering. Anal seg. long with a dorsal elliptical plate strongly infuscated like tube. 7 segs and brush slight. Lat. with single pointed plate (line) *terrestris* is 2.2

#17 Hd 1.2 nearly circular, brown brown long, slightly projecting at connection of antennae, pale brown eyes transparent black. antennae long slender, black throughout tubular & smaller with large black tufts. Thorax flattened, pale and cylindrical subcylindrical as normal head. Subequal, weaker post. lateral tufts more than 1 hair. Tube about  $4 \times 1$  slightly tapering, not fusiform nor conical, black. anal seg. broad, ringed, infuscated, & tufts & v. brush normal, moderate comb a plate? (line) body light brown mottled, darkened on sides. Pupae July 27 but August 20 PM 8

#18 15 pupae in 2, 11 and 111 apparently all *terrestris*

#19 Hd. & rounded, nearly circular, rounded narrow lobes & wider at antennal insertions, and slender antennae, smooth. Blackish, soft at middle. Body normal brown shaded, brown at base of legs. Comb a bunch of small teeth very thin & long, outer 2 the 5, accidentally is rounded black. Dorsal, infuscated. Body rather thin. Thorax, all infuscated and elliptical. 1st. finger slender, 2nd beyond middle. 1st rounded with pale brownish black, rather looking a twice at horn side. 2nd normal black like tubular. all close but normal. Body. Pupae July 25 PM

945	1021
947	1022
949	1025
951	1032
953 = 1039	1033
963	1034 (?)
969 : (14) 30	1037
978 -	1043 -
987	1046 = 266
990 <i>Angustifrons</i>	1049 = 1098
992	1051
998	1056
1001	1057
1005	1059
1008	1060
1013	1061 (17538)
1016	1062 -
1017 (?)	1063
	1067

#20 gl and an row of 4 forming a row July 22. Hd 1.2 nearly circular, pale brown legs transparent & black. antennae slender all blackish. Tufts black at outer & thin & small. Body brown shaded, also brown slight after 2 segs. Tube long about  $5 \times 1$  rounded slender, scarcely tapering. Anal seg. long with a dorsal elliptical plate strongly infuscated like tube. 7 segs and brush slight. Lat. with single pointed plate (line) *terrestris* is 2.2

#21 (Hd) rounded, slender, slender, black throughout tubular & smaller with large black tufts. Thorax flattened, pale and cylindrical subcylindrical as normal head. Subequal, weaker post. lateral tufts more than 1 hair. Tube about  $4 \times 1$  slightly tapering, not fusiform nor conical, black. anal seg. broad, ringed, infuscated, & tufts & v. brush normal, moderate comb a plate? (line) body light brown mottled, darkened on sides. Pupae July 27 but August 20 PM 8

#22 Another large replacement antennae tufted at outer & white a sharp tip, black tube moderate about  $3 \times 1$  the 5th conically tapered, basal 2/3 rather thick. All bearing brown shaded tube light brown not black. Comb 11 & 12. Also 6 amphipods. all count dark sides clear & brown black mottled with pale spots. Pupae July 27 but August 29 PM. Amphipod dead July 1



Saturday  
April 5

4/5  
95-270

1693 121  
- 1691

1071 = 1100  
~~1071~~

1071

1080 -

1082 -

1089 -

1091 -

1092 -

Red  
Kiel  
Mick  
Cano

The exact derivation of the term "coasting" is involved in some obscurity, but there is nothing doubtful as to the advantages of coasting as demonstrated by the COLUMBIA COASTER BRAKE.

1877-TWENTY FIFTH YEAR-1902  
HOME OFFICE, HARTFORD, CONN.  
**Columbia**  
AND  
**HARTFORD**  
**BICYCLES**



#13 Little worms wriggling at bottom of rain pool on a rock. Pupae floating stiff, with air tubes. (See slide)

#14 Big *canadensis* collected from spring pool July 14. Tube about  $2\frac{1}{2} \times 1$  conic fusiform brown, the tip pale black. Anal seg. distinct at least d. with tufts & v. brush. Ant. with tufts at middle, slender white on basal half, dark at outer half. Mesothorax has brown lat tufts from bottom like tubercle, metathorax has 2 such; abd. hairs slight subequal, less post. Throat looks hairy. Body all shaded in brown. Hd pale brown eyes black. Pupa July 16. Out July 19. *Culex canadensis*

#15 Ten *Culex* larvae in a closed, algae pool on little islands in the lake with one large dark anopheles. Hd 1.2 like *territans* but antennae absent! Out July 28. & Seven with hds. 8, dark brown like #3. Two with hd. 5, dark brown except tho. i. front; one with red eyes. Antennae black, narrowly pale in middle tufts well advanced. Tube long slender. Anopheles looks dark but is filled with green algae and is really pale with whitish dotted d. stripe. Hd almost solidly brown black, on the sides paler; antennae white with black tip. Pupa July 19. Out June 23. *punctipennis*

#16-22 From rock pool covered with sticks on wooded island. Water clean and cold, part of lake. #16 Hd. 8 nearly circular pale brown eyes transverse & black, antennae slender all blackish. Tuft black at outer  $\frac{1}{2}$  the tip smaller. Body brown shaded, abd. hairs slight after first 2 segs. Tube long about  $5 \times 1$  moderate slender scarcely tapering. Anal seg. long with a dorsal elliptical plate strongly infuscated like tube, tufts & brush slight. Lat. comb single pointed plate (less) *July 22* #17 Hd 1.2 nearly circular, under them long, slight projecting at insertion of antennae, pale brown eyes transverse black. Antennae long slender, black throughout terminal & smaller with large black tufts. Thorax flattened globose, abd. cylindrical subovate as usual, hairs subequal, weaker post; lateral tufts more than 1 hair. Tube about  $4 \times 1$  slightly tapering, not fusiform nor concave nearly black. Anal seg. broad winged, infuscated, d. tufts & v. brush normal, moderate. Comb a plate? (less) body light brown shaded, darkest at sides. Pupa July 27. Eyes transverse Out July 30 PM 8

#18 of *pollux* in I, II and III apparently all *territans*

Comb a bunch of small teeth more than 1 row, wider at antennal insertions, and slender uniform, faintly blackish tufts at middle. Body normal brown shaded, hairs single on first segs. Tube about  $2\frac{1}{2} \times 1$ . conic-fusiform rather thick infuscated and seg. plated on outer  $\frac{2}{3}$  the comb & tufts normal, moderate. [Another hd. 5, accidentally killed. Hd round flattened, smoky blackish eyes rounded black scarcely transverse, antennae slender, moderate, infuscated with slight tufts at middle and outer end. Body normal, lat. hairs single post. Comb of fine teeth about 3 rows wide. Tube  $2\frac{1}{2} \times 1$  conic-fusiform, all mother, of small tufts & more dorsally placed infuscated with small post. pecten. Anal seg. with small elliptical infuscated dorsal plate and terminal tufts. Fingers slender this pupa Hd 1.3 Antennae white on tufts, the tufts beyond middle almost at terminal  $\frac{1}{2}$  end slender and dark. Hd rounded with the long under 3, the transverse black eyes, pale brownish lat. hairs single after first 2 abd. segs. Tube thick, rather long, cylindrical, narrowed at tip critically, looking a truce fusiform. Comb a patch of fine spin several rows wide. Anal seg. broad weakly plated tufts & brush around black fingers rather thick, tapering at tip with visible tracheae. Tube brown infuscated. Prothorax with small dorsal lat tufts - anero with 3, metas with 4 lat ones normal. Body transparent, shaded in brown. [= #1 = #21?] Pupa July 25 PM. Out July 28

Pupa July 31

#20 July 21 got three more large black tails (=16=17), a pupa and an Anopheles in same pool. The comb is a single row of fine long teeth close together & larger centrally forming a tooth like projection. Anal finger slender & ventral look large tuft slender divaricate. {Pupa out VIII 23} July 22 two more black tails. Pupa July 28

out VII 22-23 *territans*

#21 (Three guttles) and larva with antennae weakly white shaded, tube dark but not black as #16 and much thicker than #3. Like no. 1. Comb several rows wide. VII 22 Anal fingers rather thick, uniform. Post abd. hairs look single. Tube moderate, about  $3 \times 1$ , rather thick, conically tapered at tip. Pupa July 24. Out July 27. *reptans*

#22 Another large replaces antennae tufted at outer  $\frac{1}{2}$  with a sharp tip black, tube moderate about  $3 \times 1$  the top conically tapered, nasal  $\frac{2}{3}$  rather thick. All heavily brown shaded, tube light brown not black. Comb with less. Also 6 Anopheles. Al canal dark, sides clean hd brown black marked with white spots. Pupa July 27. Out July 29 PM. Anopheles died Aug 1



also Anopheles, small

8795/8

#23 stages I, II and III in a dirty road puddle July 25 1902. Stage I was head .35 cent and agree with description of #4 stage I. Ventral hump represented by a tuft of very weak hair. Antennal tufts slight, a little before middle. Tube colored at base, top with infuscated black ring. The young ones float especially flatly.

Stage II Hd .5 Tube short, moderate fusiform, all black Hd black, body brown shaded. Like #4 II <sup>section in the clean part</sup>

Stage III Hung down more straightly in the water. Hd tube pale brown, black only on the upper edge. Comb of 6-10 spines with widened margins. Ant tuft a little before middle of joint. Eyes rounded, scarcely transverse. Tube 2 1/2 x 1 slightly fusiform conic. Anal seg. rather narrowly pleated. Fingers 4, tapered. Aft hair tufted of seg 10 c. darker on 3 than single. Thorax normal. Hairs present moderate remote, spaced nearly their own length. Hd .8 mm

Another Hd 1.2 rounded flattened, pale oblique brown, eyes round black, a black line at top of head, antennae slender and rather small, pale at base, tip black, tufts of body normal rather thick, tube about 2 1/2 x 1, conic fusiform pale brown the halves black. Side hair more than 1 whole length than as usual. Anal seg all pale, ringed but not infuscated tuft black slight. Comb of 10 spines remote on an finger tapered whole length rather pointed. al. canal broad dark, whole lower rather smoothly from the water. Pupa July 29 cut July 30 8 AM.

First four skins hatched & first 4 not cantans. 5th Aedes!! also canadensis

#24 A lot of terratus in II-III in a grassy marsh (Germanent) 50 feet across with lilies in middle & frogs croaking

#25 Several normal manotacma sapphirina with the preceding (#24) in II-III, a very long eared pupa and an Anopheles. Pupa cut July 27

#26 Stage I in rock pool mile 12, July 29 1902. Hd rounded, all blackish tuft at middle. Tube large fusiform, clear. Tube weakly blackish infuscated in a ring. Anal seg with dorsal blackish plate. Fingers 5 stellate tapered with visible tracheae on v. brush. Hair lepid, body clear, partly brown shaded. Comb pale, obscure, a few teeth on a slight infuscated area. July 30 the tube is dark shaded except a basal 1/2 which is clear. Then July 30 12M all white at first but feeding. Hd .5 Tube 3 x 1 scarcely fusiform conic tapered, blackish infuscated. Hd rounded eyes 4 blackish slightly sunken. Anal shield black. Antennae dark tufts in the middle. Comb slight of 10 teeth in a patch the central ones smaller.

Then July 31 Pupa Hd .8 Ant. tuft at vertex base pale tip dark. Head circular flattened transverse, eyes round black. Body normal, post hair dark single. Tube 2 1/2 x 1 conic-tapered, pale laterals, anal seg. not widely pleated. Tuft dark, small. Eyes round, oval, slightly transverse, no black shade to make them pointed. Body transverse, al. canal darker. pale. Tuft at middle.

Aug 4 Hd 1.2 Rounded elliptical, broader than long, eye black transverse, antennae pale, blackish at tip, tufts at vertex. Tube rather thick, slightly conic tapered about 3 x 1 with a spot behind. Tube brown anal ring lateral, hairs all pale, al canal dark brown. Antennal tuft before middle and rather slender, lateral, darker at tip. Tube 4 x 1, Pupa Aug 7 in Aug 9 Pupa

tapered, moderately thick, with comb of several denticles. Comb a patch of small spines 3 or 4 wide in center. Anal seg ringed, no hairs before the band

of the joint, blackish moderate. a long spinous and shorter ones at tip.

irregular row, 2 or 3 of the central ones projected behind the others.

#27 (23 produced Aedes cantans and Aedes from isolated one Aug 1. Hd 1.2 eyes conic shaped transverse; antennal tufts at middle with trace beyond, blackish at tip, base paler. Both head and body pale, not dark brown as the first cantans were. Tube conic tapered, about 2 1/2 x 1 pale laterals. Anal seg pale lateral. Comb visible with denticles, 9 to 10 remote brown shaped teeth. Anal seg with tufts before the end tufts. Pupa Aug 1 cut Aug 3 Aedes fuscus?

#28	Isolated another #23	Aug 1.	Pupa Aug 4	cut Aug 7	<u>canadensis</u>
#29	"	"	Pupa Aug 4	cut Aug 7	<u>canadensis</u>
#30	"	"	Pupa Aug 2	cut Aug 5	Aedes of
#31	"	"	Pupa Aug 4	cut Aug 6	<u>canadensis</u>
#32	"	"	Pupa Aug 4	cut Aug 7	<u>canadensis</u>
#33	"	"	Pupa Aug 2	cut Aug 4	Aedes of
#34	"	"	Pupa Aug 3	cut Aug 6	<u>canadensis</u>
#35	"	"	Pupa Aug 3	cut Aug 6	<u>canadensis</u>
#36	"	"	Pupa Aug 3	cut Aug 6	<u>canadensis</u>
#37	"	"	Pupa Aug 3	cut Aug 6	<u>canadensis</u>
#38	"	"	Pupa Aug 4	cut Aug 6	<u>canadensis</u>

Comb consists of 8 teeth in a slight irregular row. Tube fusiform 2 blackish infuscated middle darker than the distal 1/2. Anal seg with out end of pleat

anal tuft 28 d hairs v. thick & fine tuft rather barred area

#39 20 Aug 5 Pupa Aug 6 (died)  
#40 " Aug 4 Pupa Aug 4 cut Aug 6 Aedes of  
#41 " " Pupa Aug 4 cut Aug 7 canadensis  
#42 " " Pupa Aug 5  
#43 " " Pupa Aug 4 cut Aug 6 Aedes of  
#44 " " Pupa Aug 4 cut Aug 7 canadensis  
Pupa 28 d hairs (4 anal fingers) #45 20 Aug 4 Pupa Aug 5  
v. v. brush hair 3 first 2 cut seg. 1st & 2nd like thorax, 3rd & 4th smaller. Antennae blackish, tuft at middle, brush



